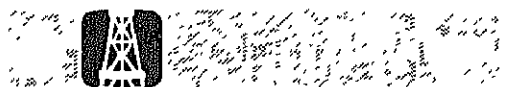


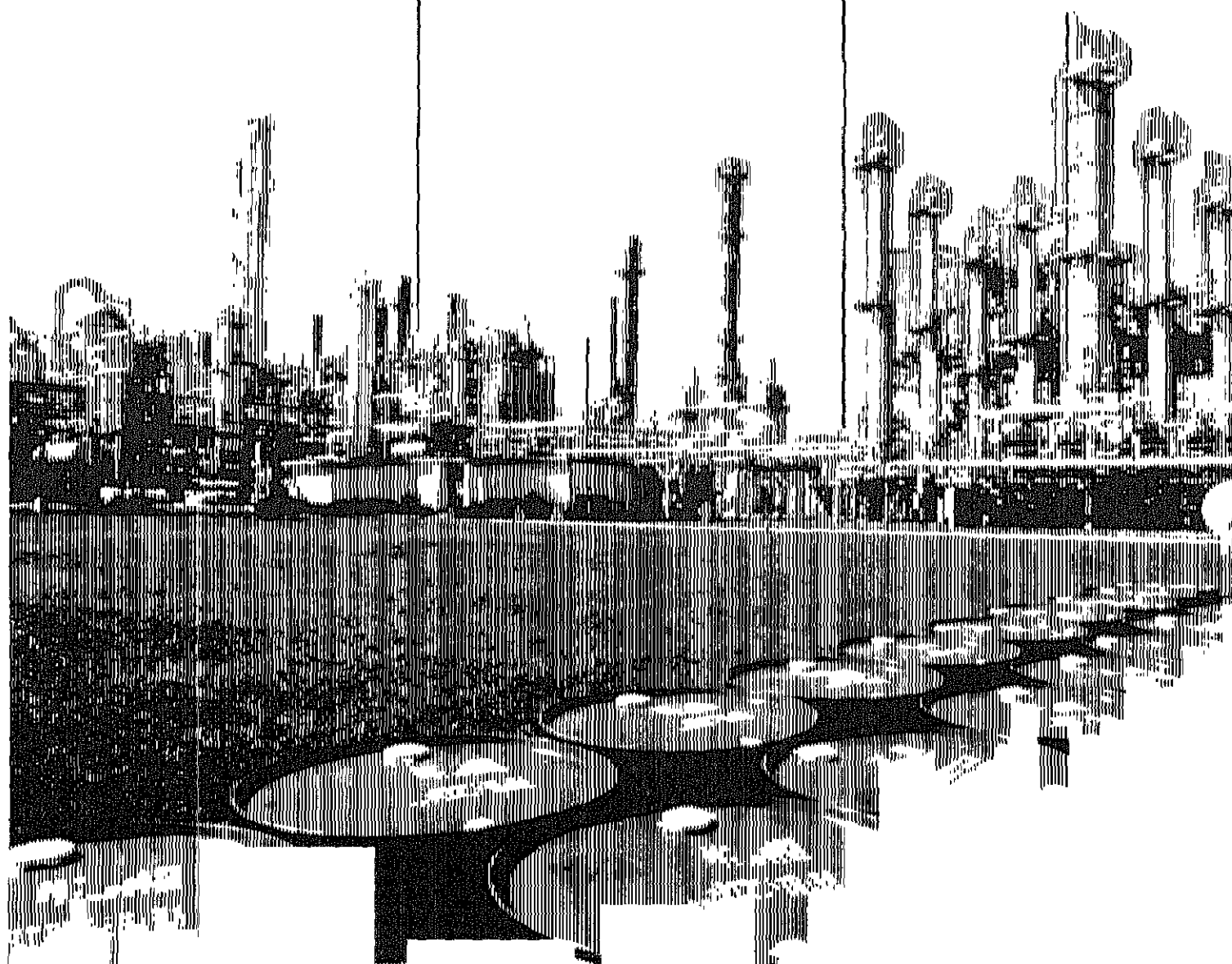
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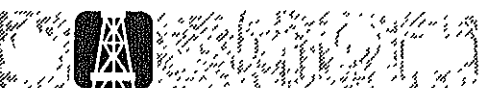
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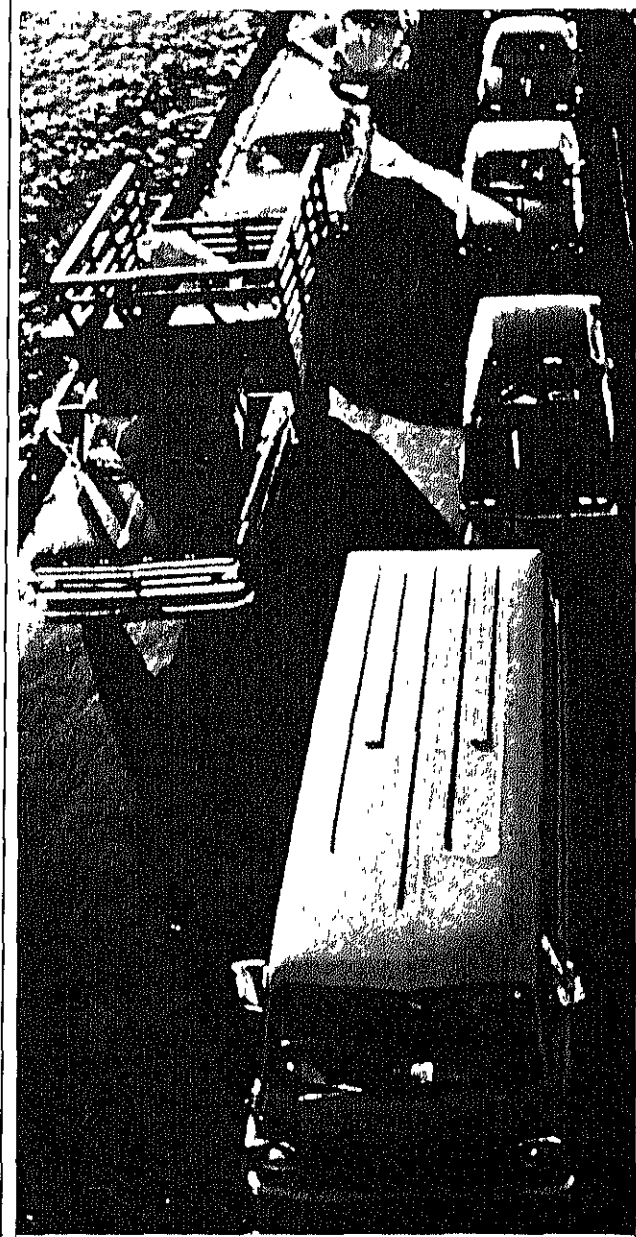
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Petroleum Supply Summary

Average Volume for Period (Million Barrels Per Day)	March			Cumulative January Through March		
	1984	1983	% Change	1984	1983	% Change
Products Supplied						
Motor Gasoline	6.5	6.8	- 5.4	6.3	6.3	0.6
Distillate Fuel Oil	3.1	2.9	6.1	3.1	2.8	11.0
Residual Fuel Oil	1.4	1.6	- 7.8	1.7	1.6	6.9
Other Products	4.6	4.2	9.1	4.8	4.3	9.9
Total	15.5	15.5	0.4	15.9	15.0	5.9
Crude Inputs to Refineries	12.0	10.9	10.6	11.9	10.9	9.5
Production						
Crude Oil, Natural Gas Liquids, and Other ¹	10.4	10.3	1.4	10.4	10.3	0.6
Imports						
Crude Oil ²	3.4	2.0	67.6	3.0	2.3	33.1
SPR	0.2	0.2	- 14.4	0.2	0.2	- 25.2
Products	1.6	1.4	12.3	2.2	1.4	53.9
Total	5.1	3.6	41.8	5.4	3.9	37.6
Exports						
Crude Oil	0.2	0.2	6.3	0.2	0.2	- 4.4
Products	0.4	0.6	- 36.7	0.4	0.7	- 41.8
Total	0.6	0.8	- 27.3	0.6	0.9	- 34.1
Stock Withdrawal						
Crude Oil ²	0.2	0.2	—	0.1	- 0.1	—
Products	0.2	1.8	—	(s)	1.3	—
Stocks at End of Period (Million Barrels)						
Crude Oil						
SPR	392	312	25.6			
Other	332	359	- 7.3			
Total	724	670	8.0			
Products						
Motor Gasoline ³	242	224	7.8			
Distillate Fuel Oil	113	119	- 5.2			
Residual Fuel Oil	48	46	2.7			
Other	307	316	- 2.8			
Total	709	705	0.5			
Total Crude Oil and Products	1,433	1,375	4.2			

1 Includes alcohol and other hydrocarbon liquids.

2 Excludes Strategic Petroleum Reserve (SPR).

3 Including blending components.

(s) = Less than 0.05 million barrels per day.

NOTE: Percent changes are based on unrounded values. March 1984 data are estimates based on weekly data, except for exports, NGL production, other hydrocarbons, and alcohol which are February 1984 monthly values. Totals may not be equal to sum of components due to independent rounding.

Source: Energy Information Administration, Petroleum Supply Monthly, February 1984.

Motor Gasoline Outlook for Summer 1984

Like the economy, the Nation's highways are expected to be busier this summer than last. As a result, 1984 summer motor gasoline demand should be slightly above last summer's level and its highest since 1979. However, because of improved new car sales and overall fleet efficiency, motor gasoline demand is expected to increase less than vehicle mileage. Because crude oil supplies and excess refinery capacity are readily available for motor gasoline production, no supply problems are anticipated for the 1984 summer driving season.

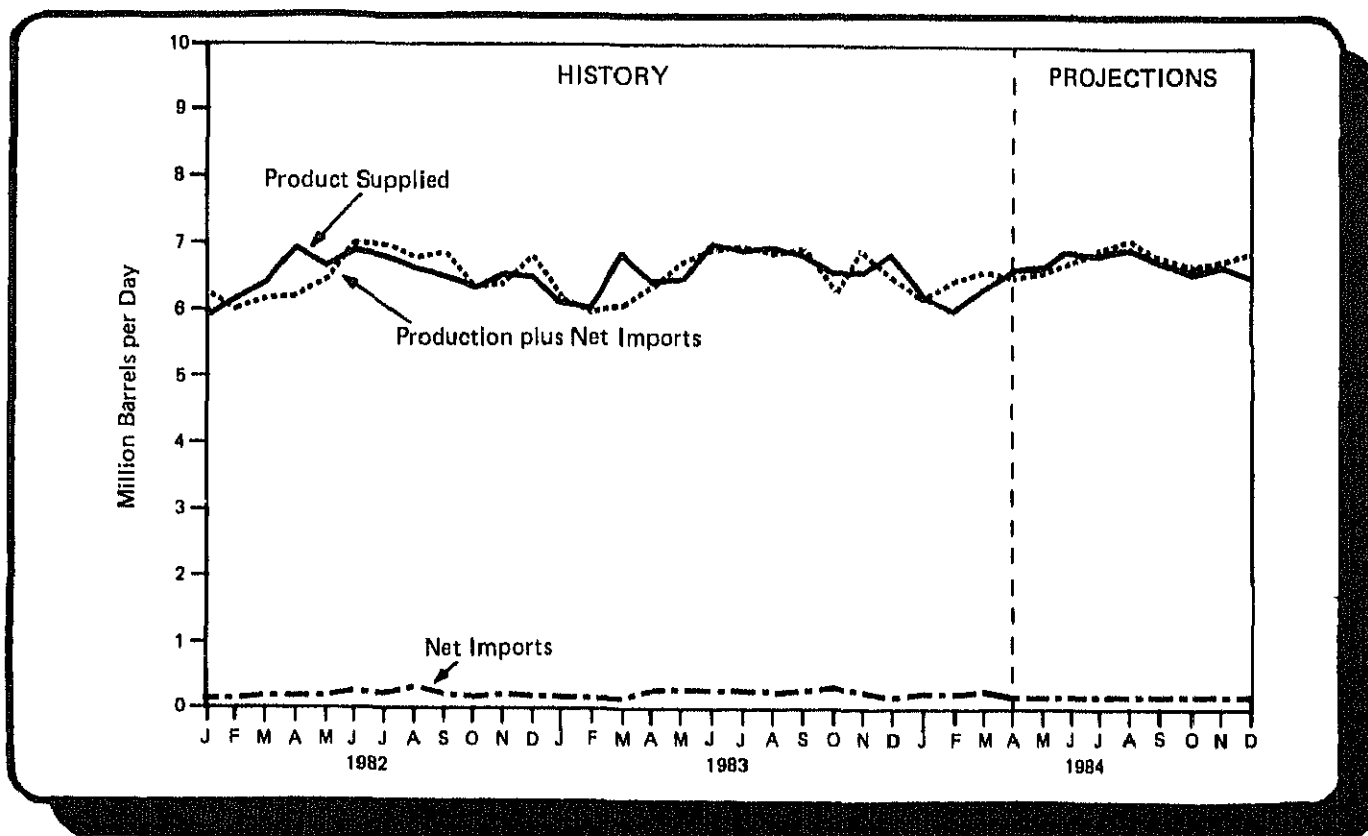
According to the Energy Information Administration's Short-Term Integrated Forecasting System, demand for motor gasoline is expected to range between 6.8 and 7.0 million barrels per day for the summer months (June, July, and August) of 1984. The level of demand will depend on economic activity, crude oil prices, and gasoline prices. The average retail motor gasoline price could range from \$1.12 to \$1.30 per gallon, depending on the course of the economic recovery and crude oil prices. However, if the average gasoline price remains around \$1.22 or \$1.23 per gallon (a decline in the real price), demand for motor gasoline this summer is forecast to be 7.0 million barrels per day. About 60 percent of the demand will be for unleaded gasoline.

Automobile travel in 1984 is expected to increase because of growth in real disposable personal income and industrial production and because of declines in the real price of gasoline. Between 1983 and 1984, real disposable income and industrial production are projected to grow 4.6 percent and 9.9 percent, respectively. The real price of gasoline is projected to decline 4.5 percent. Because of the strength of the economy, new car sales are expected to be strong, exceeding 10 million units in 1984. New cars have improved fuel efficiencies, and they require less gasoline per mile traveled. As more miles are traveled in newer cars and as new cars replace older cars, the average fleet efficiency improves. This means passenger car mileage will respond more to economic recovery than will gasoline demand.¹

Motor gasoline is supplied through domestic refining and blending, imports, and withdrawal from stocks (see Figure 1). Production at refineries and gasoline blending plants accounts for more than 95 percent of supply. This summer, motor gasoline production is expected to average 6.7 million barrels per day, about 1 percent greater than the rates of 1982 and 1983 and about 5 percent greater than the rate in 1981.

¹Energy Information Administration, *Short-Term Energy Outlook* (February 1984), DOE/EIA-0202 (84/1Q) (Washington, D.C., 1984).

Figure 1. Motor Gasoline Supply



Source: Energy Information Administration, "Petroleum Supply Monthly," and Short-Term Integrated Forecasting System.

The basic raw material for gasoline production is crude oil. Crude oil stocks at the end of March 1984 were 332 million barrels, about 7 percent below March 1983 stocks, but 47 million barrels above the minimum operating inventory of 285 million barrels estimated by the National Petroleum Council.² Crude oil was available during 1983 at an average price to refiners of \$28.99 per barrel, including imported crude oil which cost refiners, on average, \$29.35 per barrel. Crude oil inputs to refineries averaged 12.3 million barrels per day last summer and refineries operated at 74.5 percent of capacity while producing, on average, 6.6 million barrels per day of gasoline. It should be possible to reach a crude input level of 12.3 or 12.4 million barrels per day this summer from domestic supplies and crude oil imports. At such levels of inputs, refinery utilization rates would be higher than last year's rates because capacity now is about 500,000 barrels per day less than capacity last summer.

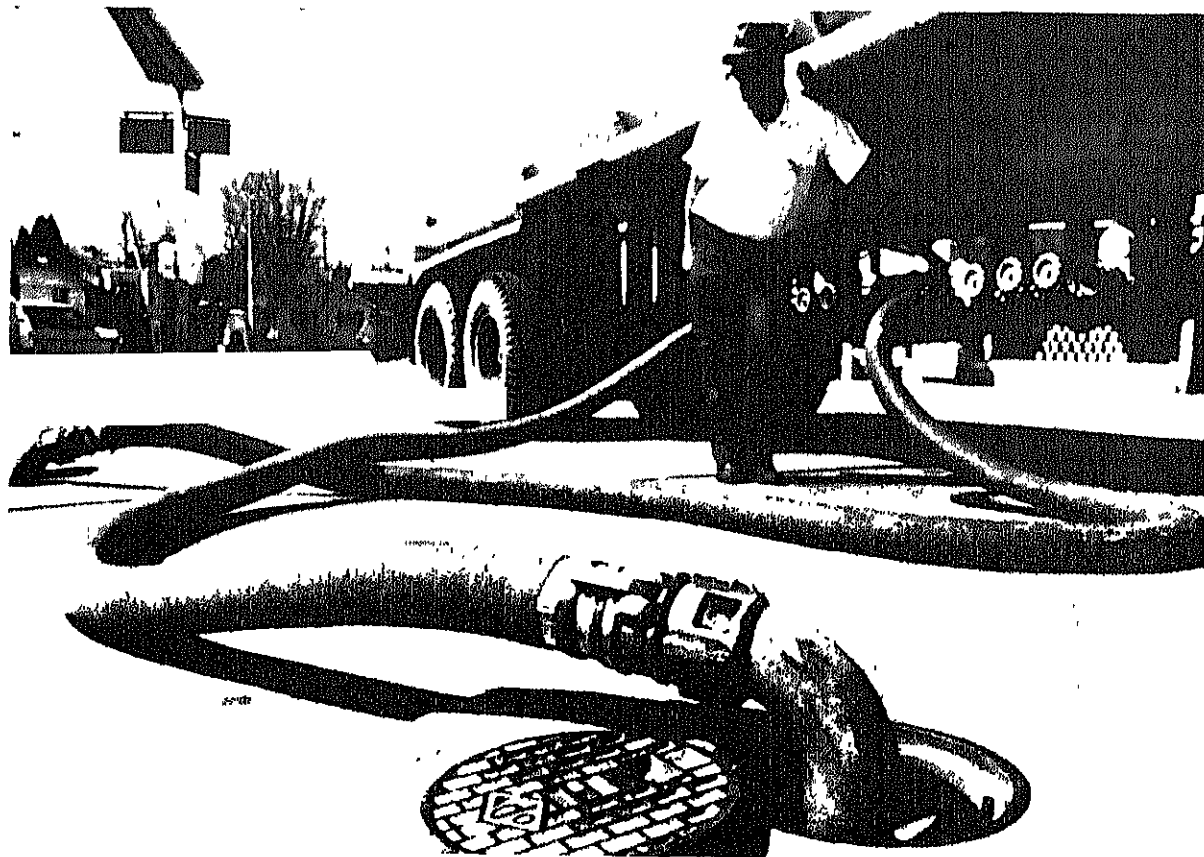
During the 1983 summer driving season, net imports of motor gasoline were higher than in any driving season in the past 10 years. They averaged 256,000 barrels per day, but still represented only 4 percent of supply. Summertime imports came primarily from the Virgin Islands, Venezuela, and the Netherlands. Most imports came to the East Coast. Net imports this summer are expected to return to lower levels—around 180,000 barrels per day.

In line with recent trends toward careful inventory management, refiners and distributors are expected to keep summer gasoline inventories below the levels of recent years, but adequately above minimum operating levels.

This year, primary stocks did not follow the usual pattern of accumulation to a February peak. However, gasoline stock levels at the end of March 1984 were slightly above stock levels a year earlier. Stocks fell in December 1983 and early in 1984 because extremely cold weather interrupted natural gas supplies to Gulf Coast refineries. The resulting refinery shutdowns caused sharply lower production levels on the Gulf Coast. Stock levels began to build again in early February. Stocks reached 237 million barrels at the end of February and 242 million barrels at the end of March. In contrast, stocks last winter were 251 million barrels at the end of February and then dropped sharply. Last March, 27 million barrels moved out of primary inventories before a new 5-cent-per-gallon Federal gasoline tax became effective on April 1, 1983.

The outlook for summer 1984 is for a moderate increase in demand for motor gasoline. Again this year, the demand will be met largely by current production, using readily available refining capacity and crude oil supplies. Imports and inventory changes will be used to a lesser extent to meet the difference. Because each region of the country except the East Coast produces enough motor gasoline to supply 80 percent of its demand, any possible distribution problems are likely to be short-lived and geographically limited.

²National Petroleum Council, *Petroleum Inventories and Storage Capacity—An Interim Report* (Washington, D.C., November 1983).



Recent Motor Gasoline Trends

Events in recent years have added to the complexity of understanding and foreseeing changes in motor gasoline demand and supply. Since 1978 motor gasoline, like other petroleum products, has responded to crude oil price increases, regulatory changes, economic slowdown, and recovery. Changes associated with the increasing use of unleaded gasoline and declining use of leaded gasoline have also had an impact. This article describes recent trends in gasoline demand, supply, and prices; it also discusses some of the major factors contributing to these trends and likely to continue influencing the motor gasoline market.

Motor Gasoline Demand

Motor gasoline demand (measured as product supplied) peaked at 7.4 million barrels per day in 1978 when demand for all petroleum products was at its highest level. Between 1978 and 1982, gasoline demand, like the demand for total petroleum products, declined. In 1983, gasoline demand was 1 percent above 1982 levels. Although smaller in absolute terms since 1978, motor gasoline's share of total petroleum demand has been growing. In 1983, demand for motor gasoline was 44 percent of the total demand for petroleum products. At this level, gasoline accounts for 5 percentage points more of total petroleum demand than it did in 1978.

In recent years, motor gasoline demand has moved with a number of short-run and long-run changes in prices and consumer choices. The demand for motor gasoline reflects primarily a demand for transportation. It has fallen whenever the price of gasoline increased and whenever economic activity declined. Drivers responded to price increases by driving less; they also responded to reductions in their incomes by driving less. In the short run, the engine types and fuel efficiencies of their cars, and continuing requirements for travel to work, school, or shop restrict drivers' ability to reduce gasoline consumption. But over a longer time period, drivers may consider other options if these are affordable and reliable. Drivers may reduce necessary transportation mileage by moving closer to travel destinations. As cars get older, drivers may replace them with more fuel efficient vehicles or perhaps with vehicles powered by some fuel other than gasoline.

New cars are notably more fuel efficient than the cars of the 1970's. Domestic automobile makers have been required to improve the fuel efficiency of their new vehicles under the Energy Production and Conservation Act of 1975. Corporate Average Fuel Economy (CAFE) standards require a sales-weighted new-car efficiency of 27.5 miles per gallon (mpg) by 1985, almost twice the 1975 average fuel efficiency. The average fuel efficiency of new cars was 27.4 mpg in 1982.¹ Although this almost matches the 1985 standards, preliminary 1983 data indicate that average new car efficiency declined in 1983 as consumers chose larger, less efficient new cars instead of smaller ones.

The average fuel efficiency of all U.S. cars remains much lower than new car efficiency because many older cars remain in the fleet. Economic slowdowns kept new car sales in the early 1980's below historic rates.² Average fuel efficiency of all U.S. cars was 16.3 mpg in 1982, compared to 14.1 mpg in 1978.³

Almost all new cars have gasoline engines. Except for diesel engines, engines using alternative fuels have not reached the mass market. Purchases of diesel-powered cars are limited because their initial cost is higher than that of gasoline-powered cars and because their performance has been considered poorer. In addition, diesel fuel prices have increased relative to gasoline prices since 1978, cutting the price incentive for switching. Diesel passenger cars still make up only about 2 percent of all passenger vehicles.⁴ When compared to fuel-switching that occurred with residual fuel oil for electricity generation or distillate fuel oil for home heating, gasoline has been largely unaffected by fuel-switching. This is the primary reason why gasoline's share of total petroleum product demand has increased. Although the last few years have seen less fuel-switching for gasoline than for other petroleum products, this does not mean that fuel-switching will not occur. It may simply mean that the time span for change will be longer than once thought.

Although the demand for finished motor gasoline has declined since 1978, the relative demand for unleaded gasoline has grown from 34.0 percent of total finished gasoline demand in 1978 to 55.1 percent in 1983. The unleaded share of total gasoline demand grew 6 percent or more each year in the late 1970's, but has grown about 3 percent annually in the 1980's.

While use of unleaded gasoline continues to grow, various factors have contributed to a slowdown in the rate of growth. The key to the growth of unleaded gasoline use is new car sales, because most new cars are designed to run on unleaded fuel only. Leaded gasoline deactivates the catalytic converters that U.S. automobiles use to meet auto-emission standards. New car sales, however, fell sharply in 1981 and 1982 because of the economic recession. Many old cars remained on the road. Although older cars could use unleaded gasoline, leaded gasoline was offered at lower prices (see box, page xii). These circumstances discouraged growth of unleaded gasoline and supported sales of leaded gasoline.

¹Energy Information Administration, *Annual Report of Energy Conservation Indicators for 1982* DOE/EIA-0441 (82) (Washington, D.C., January 1984) and *Supplement to Energy Conservation Indicators*.

²David L. Greene, "Highway Fuel Use: Trends and Factors," *Proceedings of the Energy Information Administration Symposium on Petroleum Supply Information*, DOE/EIA-0425 (Arlington, Virginia, August 1983), p. 197.

³EIA, *Annual Report of Energy Conservation Indicators for 1982* and Supplement.

⁴Greene, "Highway Fuel Use," p. 183.

What is Motor Gasoline?

Motor gasoline is the liquid petroleum product most often used to fuel spark-ignition internal combustion engines in motor vehicles. It is a mixture of liquid hydrocarbons, usually containing 5 to 12 carbon atoms per molecule, which boils in the temperature range of 90 to 400 degrees Fahrenheit. It has a specific gravity of approximately 0.74. Within this general definition, gasolines differ in ways that are important to engine performance and therefore to gasoline marketing. Anti-knock and volatility properties are of particular importance. (See Glossary)

The anti-knock properties of a motor gasoline are measured by the octane number of the gasoline. Because iso-octane burns cleanly and evenly in combustion engines -- avoiding the explosions and losses of power which drivers notice as knocking -- and heptane burns poorly, other hydrocarbon streams are compared to blends of iso-octane and heptane to describe their anti-knock properties. A liquid doing as well as 100 percent iso-octane is assigned an octane value of 100. Another liquid might compare to an 80-20 mix of iso-octane and heptane, earning an octane number of 80. Octane numbers calculated in special test situations of mild operating conditions (the research (R) octane number) are averaged with octane numbers from more severe operating conditions (the motor (M) octane number) to produce the octane number posted on the gasoline pump $(R+M)/2$.

As automobiles were designed to be more powerful and efficient, their higher compression engines required higher octane values to prevent knocking. Gasoline distilled directly from crude oil did not satisfy the increasing octane requirements. This encouraged construction of additional complex facilities at refineries to manufacture more of the high octane components. However, the cheapest method for raising the octane value of gasoline was the addition of lead components such as tetraethyl lead (TEL) or tetramethyl lead (TML). Because adding these chemicals to liquid gasoline, which is naturally unleaded, was the inexpensive way to achieve desired octane levels, it was widespread. In 1970, however, Clean Air Act amendments were passed that regulated fuel additives to gasoline. Because of lead's toxicity and effect on automobile emission systems, the Act particularly established allowable levels of lead. The law defined leaded and unleaded gasoline and required that after July 1, 1974, all gasoline service stations of specific sizes offer for sale at least one grade of unleaded gasoline of not less than 87 octane $(R+M)/2$ method.

Unleaded gasoline was defined as gasoline containing not more than 0.05 gram of lead per gallon and not more than 0.005 gram of phosphorus per gallon. Small refiners and blenders were allowed to produce leaded gasoline with higher lead content than large refiners until July 1, 1983. Permissible levels of lead were lowered in phases. Since mid-1983, no gasoline producer may produce leaded gasoline whose average lead content

during the calendar quarter exceeds 1.10 grams of lead per gallon of leaded gasoline. Interrefinery averaging of lead content is allowed and "lead rights" trading has developed to facilitate this.

Since the use of lead compounds for octane boosting is restricted, producers have been motivated to increase octane values through refinery processing and to find other permissible additives. There are many petroleum products with high octane properties; they include aromatics (such as benzene, toluene, and xylene), olefins, and isoparaffins. While very small quantities of these products are included in straight crude distillation outputs, the yield of these components is increased by downstream processing; i.e., the further processing of output from crude oil distillation units in facilities such as catalytic reformers, catalytic crackers, or hydrocrackers. These components are also produced in isomerization and alkylation facilities. Because of the need for additional equipment and processing, and also because of the alternative uses for these richer products as petrochemical feedstocks, they are expensive. Other less expensive octane boosters such as methanol, methyl tertiary butyl ether (MTBE), and blends of tertiary butyl alcohol and methanol are being promoted. In several states, alcohol-based additives receive special tax advantages.

In addition to their octane properties, gasolines are blended to have a range of volatilities. High volatility components help engines to start easily in cold weather, but can also vaporize too quickly, causing vaporlock and fuel line blockages. Low volatility components do not ignite as easily, but have a higher energy content and are more economical. The proportions of high, medium, and low volatility components are adjusted according to altitude, climate, and season.

Other performance features of gasolines are enhanced with other additives. Detergents are used to keep carburetors and other engine parts clean and performing well. Anti-icing additives keep fuel lines and carburetors from developing ice. Still other additives protect against rust, corrosion, gum, and engine wear.

The gasoline that a driver uses to fill his tank represents a choice among many types of gasolines. The choice is most certainly affected by the performance objectives for the vehicle and by the driver's pocketbook.

In addition, in a series of annual studies, the Environmental Protection Agency (EPA) reports that some new cars have been "misfueled"; i.e., fueled with leaded gasoline although they were designed for unleaded gasoline (with a catalytic converter). The amount of gasoline improperly used is difficult to estimate. In the 1982 EPA study, misfueling was suspected (because of the presence of lead in exhaust pipes) in 10.6 percent of the automobiles and trucks tested.⁵ Because misfueling is hard to measure precisely, EPA considers evidence of physical tampering more conclusive. In the same study, 16.7 percent of the vehicles had some sign of tampering; trucks showed more signs of tampering than automobiles. The EPA proposes that the motivations for these actions are lower prices and the perception of enhanced performance, because the leaded regular gasoline has a higher octane rating than unleaded regular gasoline.

Further growth in demand for unleaded gasoline and decline in demand for leaded gasoline will depend on new car sales, retirements of older cars, and limits on misfueling. To hasten this process, the EPA is considering accelerating its schedule, which now phases out leaded gasoline production in the early 1990's.

Except for the growth in demand for unleaded gasoline, patterns of regional gasoline demand followed national trends in the past 5 years. Demand for motor gasoline fell about the same degree in all regions; the relative demand position of the regions did not change. Petroleum Administration for Defense (PAD) Districts I and II, the East Coast and Midwest, account for about two-thirds of national demand—in 1983, 33 and 32 percent, respectively.

The same year, PAD Districts III and V, had virtually equal shares of demand, 15 and 16 percent, respectively. PAD District IV, the Rocky Mountains, represents about 3 to 4 percent of national demand. Although the national demand for unleaded gasoline passed the 50 percent mark in 1982, demand for unleaded gasoline remained below 50 percent in the Midwest and Rocky Mountain districts. Since then unleaded gasoline demand has passed leaded gasoline demand in the Midwest, but has not yet passed it in the Rocky Mountain district.

Because gasoline is used for passenger vehicles, light trucks, small recreational vehicles, boats, and lawnmowers, the demand is moderately seasonal. Demand is highest in the summer months, corresponding to use for vacation travel and recreational vehicles.

Motor Gasoline Supply

Motor gasoline is supplied in the United States from a combination of current production, imports, and stock withdrawal. The United States produced about 95 percent of its 1983 demand, imported about 4 percent, and reduced stocks for the remaining 1 percent.

Finished motor gasoline production occurs at refineries and at gasoline blending plants where gasoline components are combined. These components include a large number of hydrocarbon streams (low and high octane gasoline, naphthas, and natural gas liquids) produced at petroleum refineries, petrochemical plants, and natural gas processing plants. In many cases, additives that are not petroleum-based (e.g., lead) are included to enhance performance characteristics (see accompanying box).

Gasoline production occurs at large and small facilities throughout the United States. In December 1983, 184 refineries and gasoline blending plants reported production of finished motor gasoline on EIA-Form 810, "Monthly Refinery Report." Most of these facilities reported production of both leaded and unleaded gasoline. Of the 184 facilities, 183 reported finished leaded gasoline production and 163 reported finished unleaded gasoline production.

Twenty-two facilities produced more than 50,000 barrels per day of unleaded gasoline; only six reported leaded gasoline production at this rate. Of the facilities with any unleaded gasoline production, 41 percent produced less than 10,000 barrels per day; of the facilities producing leaded gasoline, 45 percent produced less than 10,000 barrels per day. Twenty facilities reported that they produced only leaded gasoline. Eighteen of these facilities produced under 10,000 barrels per day. Between January 1983 and December 1983, there was a net decline of 11 gasoline production facilities.

In recent years, regulatory changes have affected the number of facilities for gasoline production. The number of refineries and blending facilities peaked at 324 on January 1, 1981. An important factor in the growth in the number of refineries between 1974 and 1981 was the existence of the Crude Oil Entitlements Program. This program assured and subsidized the acquisition of crude oil by small refiners. Large numbers of small refiners shut down after crude oil prices were decontrolled and the Entitlements Program was terminated in 1981. On January 1, 1983, there were 258 operable refineries.

Another important regulatory factor has affected gasoline production directly. Until July 1, 1983, small refineries and blenders were allowed to have higher lead content in their leaded gasoline outputs than larger refineries.⁶ This meant the small refineries could rely more on inexpensive lead additives to achieve marketable octane levels. The intent was to give small facilities that produced low octane gasoline streams time to

⁵Larry Walz, *Motor Vehicle Tampering Survey-1982*, National Enforcement Investigations Center, EPA-330/1-83-001 (Denver, Colorado, April 1983).

⁶Small refineries were those facilities that were in operation or under construction before October 1, 1976; produced 10,000 barrels of gasoline or less each compliance period (usually a quarter); and were not owned or controlled by any refiner that had a total combined average daily production of greater than 70,000 barrels of gasoline during any compliance period after July 1, 1981.

upgrade or find alternative supplies. In the meantime, they would not have to meet the same lead standards as larger facilities and could continue to produce. Since July 1, 1983, all sizes of refineries must meet the same lead limits. It is possible, however, for refineries that do not use the full 1.1 grams of lead per gallon in their leaded gasoline to trade their excess "lead rights" to refineries that have lead levels exceeding the limit, achieving an interrefinery average of 1.1 grams per gallon.

About 44 percent of the Nation's gasoline was produced in the Gulf Coast region in 1983. The Midwest region accounted for another 28 percent and the West Coast, East Coast, and Rocky Mountain regions follow in that order. This ranking has been unchanged for many years. In 1983, the Rocky Mountain region was the only one where production of leaded gasoline exceeded production of unleaded gasoline.

Nationwide, finished gasoline represents 47 to 49 percent of refinery production. Gasoline's share of total refinery production has increased with the development and widespread construction of downstream processing facilities. Before the introduction of the first of these downstream processes, cracking, just before World War I, gasoline was only about 15 percent of refinery output. In 1983, gasoline's share of total production ranged from 43 to 57 percent in the different districts. At some facilities, gasoline represents more than 60 percent of output. Facilities are able to achieve high levels of gasoline output by having extensive downstream capacity. The percentage of finished gasoline may also be raised by methods that do not depend on capital equipment. When lead is added to raise octane levels, a larger proportion of the gasoline-range hydrocarbon stream can be finished and made marketable.

Because gasoline production was unchanged between 1982 and 1983, the small increase in gasoline demand was supplied by additional imports and stock withdrawals. Finished gasoline imports were 249,000 barrels per day in 1983—small by comparison with residual fuel oil, but still a record level. Gasoline exports were 10,000 barrels per day. Imports of finished gasoline came into this country from 28 locations outside the United States (50 States and District of Columbia). The leading countries of origin (or shipment) were the Virgin Islands, Venezuela, the Netherlands, and Romania. The Virgin Islands, Venezuela, and the Netherlands have been important sources for several years. Leaded gasoline accounted for 53 percent of the 1983 finished gasoline imports. Gasoline blending components were also imported in small quantities—about 36,000 barrels per day.

Gasoline stock levels during 1983 were highest in January and February. This is the usual pattern for primary stocks—gradual buildup of stocks through the fall and winter for drawdowns in spring and summer. Last year stocks fell especially sharply—27 million barrels—in March because a new Federal gasoline tax became effective April 1. After the spring drawdown, gasoline stocks remained about the same as in 1982. The stock levels of 1982 and 1983 were, however, lower than levels of 1980 and 1981. Lower stock levels have become desirable as inventory carrying costs have increased and

crude oil supplies have become more certain. Reflecting these changes the National Petroleum Council lowered its estimate of the national minimum operating level for total gasoline (including blending components) to 200 million barrels in November 1983, down from its 1979 estimate of 210 million barrels.¹

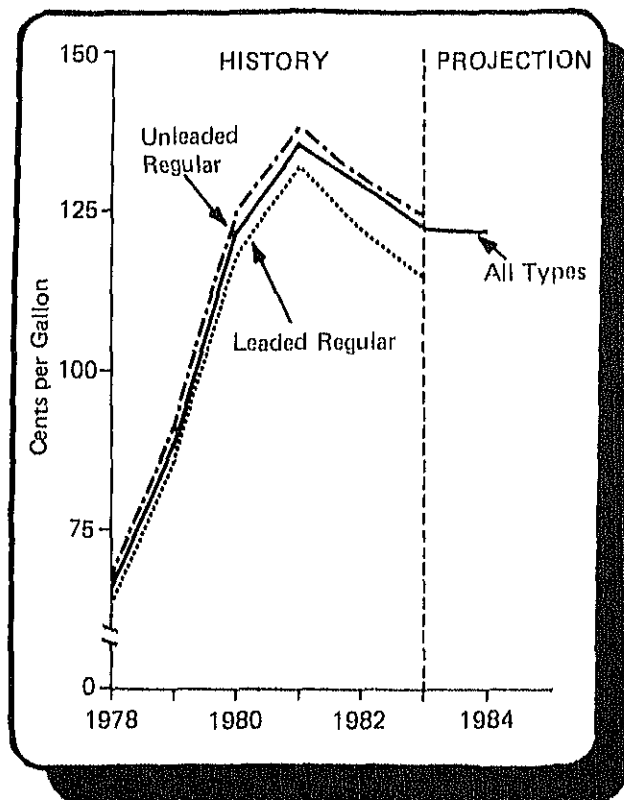
Because regional gasoline production and demand levels do not necessarily correspond, gasoline is transported between regions by pipelines, tankers, and barges. The East Coast and Midwest receive large shipments of gasoline from the Gulf Coast. Most of the gasoline travels by pipeline, but one-fifth of East Coast receipts arrive in the Southern Atlantic region by water.

Motor Gasoline Prices

Gasoline prices have been front-page news in recent years. Between 1978 and their peak in 1981, retail prices increased 108 percent in nominal terms and 60 percent in 1972 dollars. Since then, gasoline prices have fallen in both nominal and real dollar measures. Average retail gasoline prices in 1983 averaged \$1.22 per gallon, compared with \$1.35 in 1981 (see Figure 1). (Prices in 1983 were 57 cents more per gallon than in 1978, but this was

¹National Petroleum Council, *Petroleum Inventories and Storage Capacity*.

Figure 1. Motor Gasoline Prices (Nominal)



Source: Energy Information Administration, "Monthly Energy Review," "Weekly Petroleum Status Report," and "Short-Term Energy Outlook."

only 31 percent more in 1972 dollars.)⁸ The recent declines in gasoline prices are good news for consumers, because motor gasoline is the most widely consumed petroleum product in the United States.

Gasoline prices are determined by the interaction between demand and supply. They depend on what consumers are willing to pay and on what it costs producers and suppliers to bring the product to the consumer. These costs include the taxes levied by Federal, State, and local governments. The Federal Government tax on gasoline is now 9 cents a gallon, raised by 5 cents on April 1, 1983. Fifty States and the District of Columbia have State taxes that range from 5 cents per gallon in Texas to 16 cents per gallon in Minnesota and Washington.⁹ Several States and localities also levy sales (percentage) taxes. In most States, motor fuel taxes fund highway construction, maintenance, and safety programs.

In different time spans, consumers are able to respond to higher price in different ways. Since 1978, they have reduced passenger car mileage and continued to purchase new fuel-efficient autos. They have switched to self-service retailing and have reduced their purchases of premium gasoline. They have also increased the frequency of misfuelling.

On the supply side, there have been several events affecting costs in the years since 1978. Costs of supply include raw material costs, production costs, storage costs, and marketing costs.

- Following the Iranian revolution, the price of crude oil, as measured by the composite refiner acquisition cost, increased from \$12.46 per barrel in 1978 to \$35.24 in 1981 before falling back to \$28.99 per barrel in 1983.
- The number of refineries declined from 302 to 258. Most of the refineries that closed were smaller and older refineries.¹⁰
- The cost of holding inventories increased because interest rates increased. If inventories are acquired with borrowed funds, the loan charges are high. If a company's cash is used to acquire gasoline, the foregone earnings are high. In both cases, companies have an incentive to review and minimize their precautionary inventory requirements.¹¹ The results are seen in the lower inventories of the last 2 years.
- The number of retail outlets declined 19 percent, compared to a decline in consumption of 11 percent. This concentration of gasoline outlets means the average outlet is selling more.¹²

The net effect of these changes should be to reduce the number of marginal producers and distributors and to enhance economies of scale for those that remain.

Retail gasoline prices vary across the country and by season. Different state and local taxes are an important reason for the regional price differences, but transportation costs between the refinery and retail outlet are important also. In 1983, Anchorage, Washington, D.C., and Honolulu had the highest retail gasoline prices of

the cities surveyed by the Bureau of Labor Statistics. Houston, Dallas, St. Louis, and Kansas City consistently have the lowest retail prices.¹³ Both regionally and nationally, gasoline prices are usually highest in the summer when demand is also highest.

The retail price of gasoline varies for each type. Prices ascend from leaded regular through unleaded regular and leaded premium to unleaded premium (refer to Figure 1). The prices of leaded gasolines and regular gasolines are lower, respectively, than the prices of unleaded gasolines and premium gasolines. Both unleaded and premium gasolines have higher proportions of the petroleum-based high octane components (see box). Leaded regular gasoline is about 6 to 8 cents cheaper than unleaded regular gasoline. Compared to their prices in 1978 (the first year of the unleaded index), the 1983 prices for the two types of gasoline have increased to the same extent. Through 1982, however, the price of unleaded regular gasoline increased slightly less than the price of leaded regular gasoline each year (see Table 1).

Table 1. Gasoline Price Trends, 1978-1983
(Index 1978 = 100)

Year	All Types	Leaded Regular	Unleaded Regular
1978	100	100	100
1979	135	137	135
1980	187	190	186
1981	208	209	206
1982	196	195	193
1983	188	185	185

Source: Energy Information Administration, "Monthly Energy Review," and "Weekly Petroleum Status Report."

In the first months of 1984, retail gasoline prices were little different from prices in the closing months of 1983. The *Short-Term Energy Outlook* (February 1984) assumed that the effects of the various demand and supply factors would leave the nominal price of gasoline unchanged for the remainder of 1984 and would lower the real price 4.5 percent.

⁸Prices and Gross National Product deflators are from *Short-Term Energy Outlook* (February 1984) and Energy Information Administration, *1982 Annual Energy Outlook*, DOE/EIA-0383(82) (Washington, D.C., May 1983).

⁹Energy Information Administration, *Petroleum Marketing Monthly* DOE/EIA-0380(83/12(2)) (December 1983(2)), p. 90.

¹⁰Elizabeth E. Campbell, "Trends in Refinery Capacity and Utilization," *Proceedings of the Energy Information Administration Symposium on Petroleum Supply Information*, DOE/EIA-0425 (Arlington, Virginia, August 1983).

¹¹Richard D. Farmer, "Minimum Operating Inventories for Gasoline, Distillate Fuel Oil, and Residual Fuel Oil," *Proceedings of the Energy Information Administration Symposium on Petroleum Supply Information*, DOE/EIA-0425 (Arlington, Virginia, August 1983).

¹²Bureau of Industrial Economics, U.S. Department of Commerce, *Franchising in the Economy, 1981-1983* (Washington, D.C., January 1983).

¹³Bureau of Labor Statistics, U.S. Department of Labor, "Consumer Prices: Energy and Foods," monthly release (Washington, D.C.).

New Patterns Emerging in U.S. Petroleum Imports and Exports

Recent trends in total petroleum demand—influenced by the recession and current economic recovery as well as by declining world oil prices—have combined to effect significant changes in the volumes, qualities, sources, and destinations of this Nation's foreign trade in crude oil and refined products.

For example, from 1978, the peak year for domestic petroleum consumption, through 1983:

- The average annual rate of gross crude oil imports declined by 3.1 million barrels per day.
- The share of "heavy" crude oil imports (below 25 degrees American Petroleum Institute (API) gravity) increased relative to the share of "light" imports (above 37 degrees API gravity).
- The share of high-sulfur crude oil imports (2.5 percent or more sulfur content) increased relative to the share of low-sulfur imports (less than 0.5 percent sulfur content).
- The share of crude oil imports from Organization of Petroleum Exporting Countries (OPEC) producers declined from 82 percent to 44 percent of the U.S. total.
- East Coast imports of residual fuel oil (primarily from the Caribbean) decreased by more than 50 percent.
- Exports of refined petroleum products increased nearly threefold, to 575,000 barrels per day.

This article describes these and related changes in U.S. trade in crude oil and refined products. As explained in the article, the basis for this trade is differences among the costs of supplying petroleum from alternative sources. The general level of economic activity, the regulatory environment, interest rates, international supply conditions, etc., may all influence the relative costs of supply from domestic production, inventory drawdown, and imports.

Crude Oil Imports Levels Reflect Domestic Demand

Domestic petroleum price controls, the periodic success of OPEC pricing strategies, and uncertainty concerning the reliability of foreign supplies have combined to make domestic crude oil the lowest cost source of oil to domestic refineries since the early 1970's. Between 1959 and 1973, however, the relative supply economics had favored imports, and the Federal Government's Mandatory Oil Import Program acted to protect domestic producers from the low-cost crude oils of the newly developed, prolific fields of the Middle East.

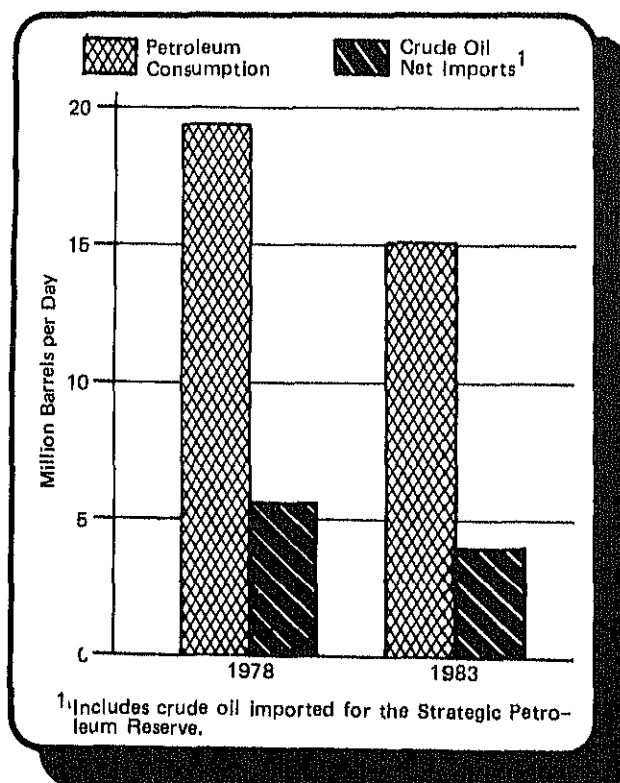
Now, as the higher cost product, imported crude oil generally represents the marginal source of oil supply to this country. And, as the marginal source, imported oil absorbs most of the variation in domestic petroleum demand.

In recent years, net U.S. crude oil imports dropped markedly in response to declining demand for petroleum products.¹ Consumption of petroleum, measured as petroleum products supplied, dropped steadily from its record 1978 level of 18.8 million barrels per day to an average of 15.2 million barrels per day during 1983 (see Figure 1). Stable domestic crude oil production and reduced refinery operations, with little drawdown of primary crude oil stocks, accompanied the decline.

Lower demand for crude oil and petroleum products resulted, in part, from reduced levels of economic activity.

¹Gross crude oil imports, including purchases for the Strategic Petroleum Reserve, less crude oil exports.

Figure 1. Petroleum Consumption and Crude Oil Net Imports, 1978 and 1983



Source: Energy Information Administration, "Petroleum Supply Monthly," December 1983(3).

ity, fuel switching, and energy conservation investments by homes and businesses. It is likely that efforts by distributors and retailers to lower their own, secondary inventories also contributed to a lower effective demand for primary supply.

As a result, gross imports of crude oil declined from an average of 6.4 million barrels per day during 1978 to 3.3 million barrels per day during 1983. Foreign oil, which accounted for about 40 percent of U.S. refinery receipts in 1978, made up about 26 percent of receipts in 1983. Additional imports of crude oil for the Strategic Petroleum Reserve, however, average 0.2 million barrels per day during both 1978 and 1983.

Shift Among Traditional Import Sources

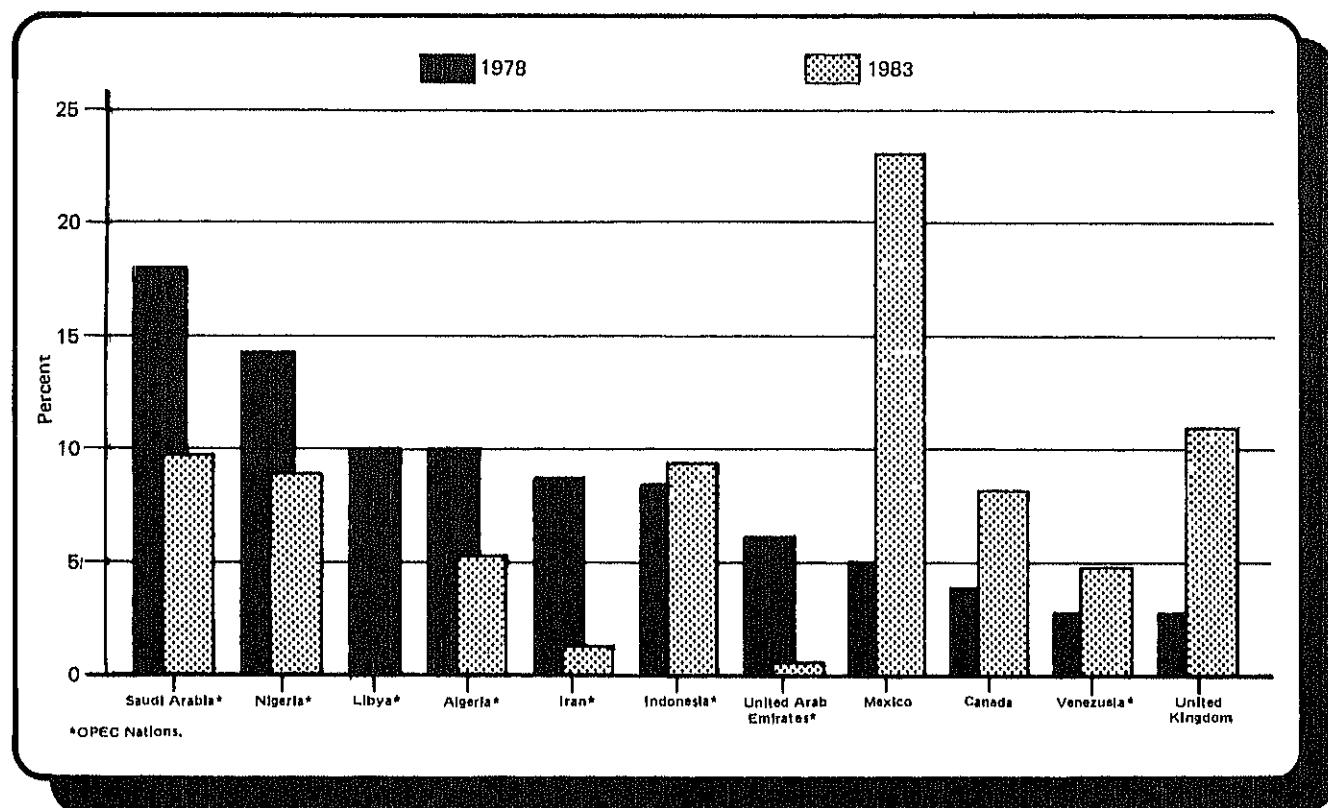
The world market price for crude oil reflects the marginal cost of the most expensive source of supply. But, when producers are governments, as opposed to profit-maximizing firms, these supply costs may account for political constraints in addition to the basic resource costs of locating, extracting, and delivering the oil. Supported by target production levels for individual OPEC members and the swing role of Saudi Arabia, the inflexibility of OPEC oil prices in the face of the increased worldwide competition and decreasing demand of the last 2 years has raised the cost of incremental OPEC oil purchases relative to that for other sources.

Thus, not only the total volume of U.S. crude oil imports but also the relative contribution of certain countries to that total may be expected to vary with changing U.S. petroleum demand.

Figure 2 traces the amplitudes in U.S. imports from major producing countries in response to changing demand levels since 1978—the peak year for U.S. petroleum consumption. What stands out in this figure is the variability in imports from OPEC sources in general and from Saudi Arabia in particular. The growing role of Mexican and United Kingdom (i.e., North Sea) oil imports is also clear.

Crude oil imports from OPEC countries into the United States declined substantially between 1978 and 1983, while those from non-OPEC producers increased. During 1978, OPEC members had supplied nearly 82 percent of U.S. crude oil imports. The three leading suppliers were Saudi Arabia, Nigeria, and Libya. By 1983, OPEC members were supplying less than one-half of gross U.S. crude oil imports, and Mexico had become the major foreign supplier. The United Kingdom ranked second as a source of U.S. crude oil imports in 1983, up from eleventh place in 1978. The percentages of crude oil imported from Indonesia and Venezuela—countries that have adopted a more competitive stance in the face of declining demand—increased slightly, while the percentages from Algeria, Iran, Libya, and Saudi Arabia declined. The United States imported no crude oil from Libya during 1983.

Figure 2. Imports of Crude Oil from Selected Countries, 1978 and 1983 (Percent of Total)

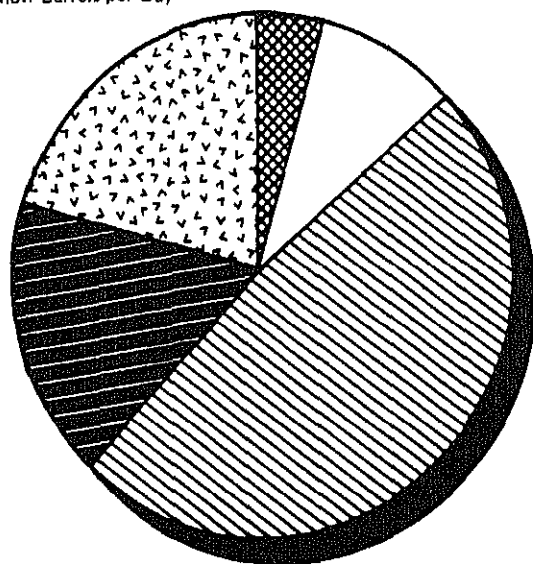


Source: Energy Information Administration, "Annual Petroleum Statement," 1978, and "Petroleum Supply Monthly," January through December 1983(3).

Figure 3. API Gravity of Imported Crude Oil, 1978 and 1983

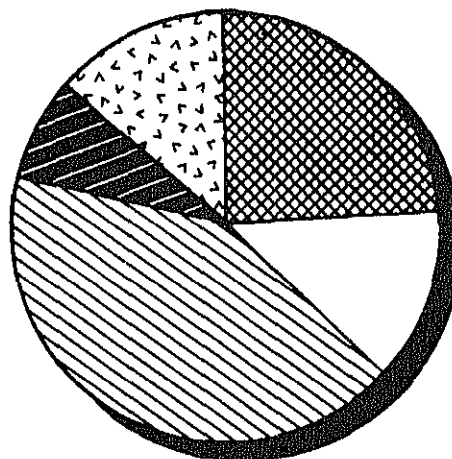
1978

6.4 Million Barrels per Day



1983

3.3 Million Barrels per Day



0 - 25.0° API Gravity
25.1° - 31.0° API Gravity

31.1° - 37.0° API Gravity

37.1° - 40.0° API Gravity
40.1° and over API Gravity

Source: Energy Information Administration, Form ERA-60, "Report of Oil Imports Into the United States and Puerto Rico."

Changes in import levels and sources, however, should continue to be viewed in the context of the U.S. business cycle and the interaction among economic activity, demand for petroleum products, inventory strategies, and the price of oil.

Thus, in recent months, with the emerging recovery of the U.S. economy, imports from OPEC nations have again been increasing. By December 1983, imports of OPEC crude oil had reached 1.6 million barrels per day, almost double the first-quarter rate and nearly one-half of the U.S. crude oil imports. This latest increase reflected stepped-up imports from Algeria, Indonesia, Nigeria, and Saudi Arabia.

The recent increase in imports of Saudi Arabian crude oil has also been associated with the success of that country's sales in the spot market by its newly-formed Government trading company, Norbec, Ltd. Norbec markets Saudi Arabian crudes on a spot basis and at official prices to buyers in Japan, the United States, and Western European countries. This large-scale Saudi entry into the spot market represents a significant milestone in the development of the world oil market, widening the access of non-ARAMCO companies to Saudi production.²

Increased Marketing of Heavy and Sour Crude Oils

Changes in import volumes and sources are also represented in the mix of crude oil qualities available to the Nation's refineries.

Crude oils can be classified by several characteristics, such as viscosity, asphalt or paraffin base, mineral content, etc. The chemical composition of the crude oil input stream to a refinery both conditions the capital investment required to economically process that oil and constrains the mix of products that can be obtained. At the same time, the market demand for refined products and the complexity of the refinery also indicate the relative value of different crude oil types.

In the course of the 1981-82 economic recession, the general reduction in petroleum consumption was distributed unevenly across consuming sectors, with industrial demand affected more severely than either residential or transportation demand. The industrial sector also had responded more vigorously to the conservation and fuel-switching incentives of the 1979 and 1980 oil price increases. As a result, recent years have witnessed a basic demand shift toward the lighter petroleum products (such as gasoline) and away from the heavier ones (such as residual fuel oil). Increasing relative demands for unleaded gasoline and for transportation diesel fuel also mean refineries must produce higher quality streams of these lighter products.

Responding to a long-term outlook for declining crude oil quality and a continuation of the product demand

²Arabian American Oil Company is a partnership of Saudi Arabia with Exxon, Socal, Texaco, and Mobil.

shift already underway, many U.S. refiners have increased their downstream processing capabilities, adding catalytic cracking, hydrocracking, and hydrotreating capacity. Refiners can now make a given mix of finished products from a wider range of crude oil types. This new flexibility has permitted them to reduce their dependence on higher-gravity and lower-sulfur feedstocks, which command a significant, although declining, price premium in the world market.

A principal source for many of the high-quality crude oils is the OPEC countries. Thus, the recent shift away from OPEC imports associated with the general decline in oil imports was facilitated by the enhanced ability of U.S. refiners to pick and choose among crude oil types.

Gravity

One important index of crude oil quality, indicating the mix of products that can be obtained, is weight per unit volume, or gravity. A system of degrees gravity developed by the API is the most commonly used measure of specific gravity. Often, the heavier crudes—those with low API gravity—will contain high levels of sulfur and other mineral impurities as well.

The average gravity of crude oils imported into the United States during 1983 was 31.0 degrees API, down from 33.7 degrees in 1978. As the total volume of crude oil imports declined over the period, the percentage of heavier (below 25 degrees API gravity) crude oils imported increased at the expense of the lighter (above 37 degrees API gravity), and higher-priced, crude oils (see Figure 3). These increases were mainly in the midcontinental States, where refiners had been especially active in adding downstream capacity that permitted them to process the heavier crudes. Seven out of every 10 barrels of crude oil imported during 1983 fell into the range of 0 to 37.0 degrees API (see Table 1), compared with 6 out of every 10 barrels during 1978.

Sulfur Content

Between 1978 and 1983, there was also a notable increase in the percentage of high-sulfur, or "sour," crude oils imported. As a result, the average sulfur content of crude oil imports rose during the period from 1.0 to 1.3 percent. High-sulfur crudes (2.5 percent or more sulfur) accounted for 25 percent of the imports in 1983, compared with only 5 percent in 1978. Imported crudes with less than 1.5 percent sulfur accounted for more than one-half of the 1983 volumes, down from over three-fourths during 1978 (see Figure 4).

The United States imported 0.8 million barrels per day of high-sulfur crude oil during 1983. Nearly all the high-sulfur crude oil imports were received by petroleum refineries east of the Continental Divide, and virtually all the relative growth in the imports of high-sulfur crude oil imports occurred there. Only small quantities of high-sulfur crude oils were imported for refining on the West Coast, which already processes large volumes of the heavy, sour California crude oils.

While there is already some reversal in the shift among import sources with the current recovery of U.S. petroleum demand, the restructuring of the domestic refining industry represents a more permanent change. So, without a significant reduction in price premiums placed on the lighter, less sour crude oils, a return to the average import quantities of recent years should not be expected.

Refined Products Account for Larger Share of Petroleum Imports

Domestic refinery output, based on the processing of both domestic and imported crude oils, has been increasingly supplemented by imports of refined products since 1981. Gross imports of petroleum products

**Table 1. Crude Oil Imports, 1983, by API Gravity and Sulfur Content
(Thousand Barrels per Day)**

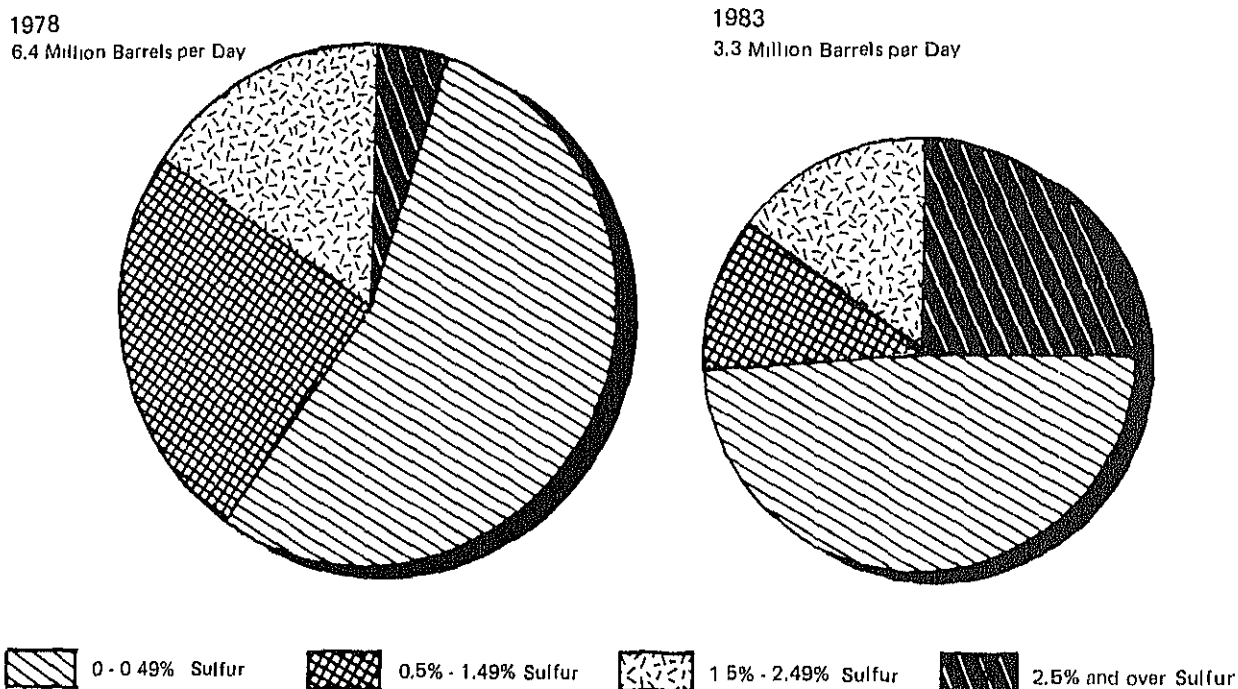
API Gravity	Percent Sulfur						Total
	0-0.49	0.5-0.99	1.0-1.49	1.5-1.99	2.0-2.49	2.5 and over	
API Gravity							
0.0-10.0	26.0	2.0	0	0	0	129.1	157.1
10.1-15.0	0.8	0	0	1.6	9.3	85.9	97.6
15.1-20.0	1.9	0	(s)	2.6	28.4	10.2	43.0
20.1-25.0	28.0	22.9	2.1	13.9	17.6	431.7	516.1
25.1-28.0	58.1	5.7	2.1	0.9	56.7	111.5	235.0
28.1-31.0	73.4	40.7	40.3	22.8	55.5	37.0	269.6
31.1-34.0	254.2	11.0	115.6	241.9	11.3	11.8	645.8
34.1-37.0	501.6	33.1	64.7	26.3	8.4	4.3	638.5
37.1-40.0	287.9	30.0	(s)	3.1	0	0	321.0
40.1-44.0	222.6	1.1	(s)	1.7	0	(s)	225.7
44.1-and over	150.4	1.5	1.4	0	0	0	153.3
Total	1,604.7	148.0	226.5	314.7	187.2	821.4	3,302.5

(s) Less than 500,000 barrels per day.

Totals may not equal sum of components due to independent rounding.

Source: Energy Information Administration Form ERA-60, "Report of Oil Imports Into the United States and Puerto Rico."

Figure 4. Sulfur Content of Imported Crude Oil, 1978 and 1983



Source: Energy Information Administration, Form ERA-60, "Report of Oil Imports into the United States and Puerto Rico."

accounted for 11.1 percent of total domestic product supplied in 1983, up from a 10-year low of 9.7 percent in 1980. The annual rate of total product supplied had dropped by almost 1.9 million barrels per day over this period, but gross imports were relatively successful in maintaining their share of a declining U.S. market.

Although the goal here is to describe developments in the overall U.S. foreign trade in petroleum, it is worth noting that the recent upward trend for gross product imports has not been paralleled by that for net imports. As a result of increasing product exports, discussed below, the ratio of net imports of petroleum products to total products supplied declined from 8.1 percent in 1980 to 7.3 percent in 1983.

Basically, product imports may be expected to increase whenever foreign production costs are lower than domestic costs. Low-cost, seasonal operation of relatively uncomplex, heavy-fuel refineries in the Caribbean has been a particularly important source of winter supply for residual fuel oils to East Coast U.S. markets. (See Box on Caribbean refining industry.) In 1983, 57 percent of U.S. refined product imports came from the Caribbean Basin, 6 percent from Europe, 16 percent from Canada, and 10 percent from Africa and Asia.³

Residual fuel oil and liquefied petroleum gases (LPG) are two of the most heavily imported petroleum products. Almost 690,000 barrels per day of residual fuel oil and 190,000 barrels per day of LPG's were imported in 1983 (see Table 2). Also in 1983, imports of distillate fuel oils averaged 168,900 barrels per day, after falling to 93,300 barrels per day in 1982; and imports of motor

Table 2. Petroleum Product Imports, 1978 and 1983 (Thousand Barrels per Day)

Commodity	1978	1983
Liquefied Petroleum Gases	122.8	190.3
Finished Motor Gasoline	190.4	249.0
Distillate Fuel Oil	173.4	168.9
Residual Fuel Oil	1,355.2	689.3
Unfinished Oils	27.2	233.3
Others	138.7	155.1
Total All Products	2,007.7	1,685.9

Source: Energy Information Administration, "Annual Petroleum Statement," 1978, and "Petroleum Supply Monthly," 1983.

gasoline were nearly one third higher than those 5 years earlier.

Residual Fuel Oil Imports Grow with Changes In U.S. Refining Industry

Residual fuel oil markets have been very weak in recent years. Reduced industrial residual fuel oil demand has been attributed to the severe 1981-82 recession, as well as to conservation and fuel switching in the wake of the sharp petroleum price increases of 1979 and 1980. Thus, although meeting a larger part of the U.S. residual fuel oil requirements, 1983 residual fuel oil imports were still about half their 1978 level.

³Caribbean Basin petroleum exporters include Puerto Rico, the U.S. Virgin Islands, the Bahamas, Mexico, the Netherlands Antilles, Trinidad and Tobago, and Venezuela.

Caribbean Refining Industry

Caribbean crude oil refineries supply more than half the U.S. demand for imported petroleum products. In 1983 five Caribbean nations, Puerto Rico, and the U.S. Virgin Islands supplied almost 57 percent of U.S. product imports. Three of the five Caribbean refining nations--Mexico, Trinidad and Tobago, and Venezuela--are oil producers. The other two nations--the Bahamas and the Netherlands Antilles--refine only imported crude oil.

The principal U.S. petroleum product import from the Caribbean is residual fuel oil--accounting for 47 percent of the total shipments received from this region in 1983. By contrast, the second biggest import, unfinished oils, contributed only 19 percent to the total.

The emphasis on residual fuel oil production characterizes refineries in both the U.S. Caribbean (Puerto Rico and the Virgin Islands) and the non-U.S. Caribbean. As a percentage of their total shipments, however, the non-U.S. Caribbean sells more than twice as much residual fuel oil as the U.S. Caribbean. Puerto Rico and U.S. Virgin Islands are this Nation's main Caribbean source of finished motor gasoline and distillate fuel oil imports.

Markets

Refineries in the U.S. Caribbean are primarily engaged in production for export. Except for certain products, like kerosene, the U.S. Caribbean generally exports more petroleum products than are consumed on the islands.

Within the non-U.S. Caribbean group, refineries in the Bahamas, Trinidad and Tobago, and the Netherlands Antilles are even more export oriented than the U.S. region. Mexican and Venezuelan refineries, however, operate to meet both export and domestic requirements. When the refining activity of these two large countries is included, more than 60 percent of distillate fuel oil, kerosene, liquid petroleum gas, and motor gasoline production in the non-U.S. Caribbean is consumed by domestic markets.

Refinery Complexity

Caribbean refineries are generally less complex than those in the United States, with some significant exceptions. The relationship between total downstream capacity and

crude oil distillation capacity provides a general indication of refinery complexity (see Table below). On this basis, the structure of U.S. Caribbean refineries is comparable with that for the rest of the country. Mexican and Venezuelan refineries are less complex, while still maintaining significant capacity to produce the lighter fuels for domestic use. The smaller, non-U.S. island refineries represent relatively uncomplex operations. (The Bahamas has virtually no downstream process capability.) Accounting for the very heavy, Venezuelan crude oils commonly processed by many of the non-U.S. Caribbean refineries, the ability of these operations to produce lighter fuels is even more limited than directly indicated by the available downstream capacity.

Refinery Operations

Average refinery capacity utilization (measured as crude oil runs divided by crude oil distillation capacity) in the U.S. Caribbean in 1982 was 65 percent, slightly below that of the mainland United States, at 70 percent. Average 1983 utilization in the U.S. Caribbean was 62 percent. Activity at all these U.S. refineries had declined since 1979, although average utilization through the mid-1970's had been consistently above 80 percent. With the pickup in the U.S. economy in 1983, however, refinery utilization is now increasing.

Venezuelan refineries were operated at 67 percent utilization in 1982--a relatively high level considering the low demand for residual fuel oil in that year. More striking is the 94 percent utilization of Mexican refineries in 1982. Considering the high energy and maintenance costs of operating refineries at this level, this intense production underscores (1) the effect of government price controls and (2) the importance attached by the Mexican government to bringing in foreign currency in this period.

The export refineries of the Bahamas, the Netherlands Antilles, and Trinidad and Tobago were being utilized at significantly less than the U.S. rate in 1982--at 37, 49, and 40 percent, respectively. The low annual average rate reflects the highly seasonal nature of the demand for their principal product, residual fuel oil, but contrasts sharply with the very high utilization rates for this region in the early 1970's when the U.S. Mandatory Oil Import Program was still in effect.

Operable Capacity of Petroleum Refineries, January 1, 1983 (Thousand Barrels per Stream Day)

	U.S.	U.S. Caribbean	Non-U.S. Caribbean		Total
			Mexico and Venezuela	Other Caribbean	
Crude Distillation	17,871	818	2,838	1,841	4,679
Vacuum Distillation	7,180	321	1,296	563	1,859
Thermal Operations	1,715	60	168	267	435
Catalytic Cracking	5,890	56	529	74	603
Catalytic Reforming	3,918	269	190	17	207
Catalytic Hydrocracking	883	15	20	0	20
Catalytic Hydrotreating	8,354	582	870	383	1,253
Total Downstream	27,940	1,303	3,073	1,304	4,377
Complexity Index (%)*	156	156	108	71	94

* Total downstream capacity divided by crude oil distillation capacity times 100.

The magnitude of the decline in residual fuel oil imports also reflects the high base from which this decline started. Exemption of East Coast residual fuel oil imports from the restrictions of the Mandatory Oil Import Program in the early 1970's and, after 1976, the granting of partial entitlements to East Coast residual fuel oil importers provided significant incentives to Caribbean producers. Termination of the Entitlements Program with the decontrol of crude oil prices in January 1981 ended this effective subsidy.

At the same time that product imports were being encouraged, the Small Refiner Bias of the Entitlements Program was subsidizing domestic investment in small-scale refinery operations that produced relatively high yields of residual fuel oil. Without this program, and the resulting increased domestic production, imports would likely have been greater yet.

Now, residual fuel oil imports are competing in what is the closest they have been to a free market in more than 15 years. On net, the shutdown of small, inefficient domestic refineries supported by the Entitlements Program has probably improved the relative economics of product imports.

Since 1972, most U.S. residual fuel oil imports have come from the Caribbean region. In 1972, about 83 percent of U.S. imports came from the Caribbean Basin, including Mexico and Venezuela. However, by 1983 this share had decreased to 66 percent, with an increasing share (9 percent) of a reduced market coming from African nations. Most residual fuel oil imports—87 percent in 1983—continue to be received by East Coast States. New York, New Jersey, and Massachusetts are the largest importers, with peak-season surges in residual fuel oil imports for electricity generation.

The current economic recovery along with a near-term outlook for continued increases in relative natural gas prices should act to stimulate residual fuel oil demand—which, in turn, should result in higher residual fuel oil imports. However, even while average import levels may increase, a return to the sharp seasonal swings in imports of the early 1970's should not be expected as long as the current availability of extra refining capacity in this country persists.

Liquefied Petroleum Gas Trade and World Natural Gas Markets

LPG's—including propane, butane, ethane, and petrochemical feedstocks such as propylene and butylene—are produced at both refineries and natural gas processing plants. Imports of LPG's have risen gradually since 1972, primarily reflecting a relative cost advantage enjoyed by foreign producers of natural gas. About 85 percent of U.S. LPG imports in 1972 came from Canada, and most of the balance came from Venezuela. By 1983 the Venezuelan share had been largely supplanted by supplies from Mexico and Saudi Arabia.

About 70 percent of 1983 LPG imports came into Midwestern States, and most growth in U.S. imports since 1972 has been in this region. Gulf Coast imports of LPG nearly doubled in this period, but that region's share of total imports remains small.

Export Regulations

The issue of Federal controls on petroleum exports was highlighted in 1983 with the debate on whether to allow exports of North Alaskan crude oil. Exports of crude oil and major refined products are regulated by an array of Federal laws.

The Export Administration Acts (EAA) of 1969 and 1979 have authorized the President to restrict exports when it is determined that those exports would be to the national detriment. The EAA provided the legal framework for the initial December 1973 imposition of quotas on gasoline, kerosene, distillates, aviation fuels, residual fuel oils, and most naphthas. Export licenses, but not quotas, were required for residual products such as coke and carbon black. However, exports of petrochemical feedstocks, waxes, and lubricating oils were not controlled.

Export quotas and licensing are managed by the Department of Commerce and enforced through the adoption of "Short Supply Control" regulations authorized by the EAA. Although the legislative basis for product quotas is still in place and export licenses are required, in 1981 the Department of Commerce removed all remaining quantity restrictions on refined product exports.

Predating the EAA, the Mineral Lands Leasing Act (MLLA) of 1920 and the Outer Continental Shelf Lands Act of 1953 both require a Presidential finding that any export of crude oil would not diminish the quantity or quality of oil available to the United States or increase imports. The Trans-Alaska Pipeline (TAP) Authorization Act of 1973 extends the provisions of the MLLA to Alaskan production transported via the TAP system. Finally, the Energy Policy and Conservation Act of 1975 required the President to promulgate export control regulations. The MLLA and the Naval Petroleum Reserve Act of 1976, however, enable the Federal Government to exempt from these restrictions oil from Federal lands that is exchanged with oil from adjacent foreign states.

Many of these Federal laws contain provisions that allow one-house Congressional vetoes of any Presidential finding that exports would be in the national interest. However, such provisions were recently declared unconstitutional by the Supreme Court decision in the case of *Immigration and Naturalization Service vs. Chadha*. Thus, some legislative remedy in this area may be anticipated in the next year. Although extension of the EAA is being discussed in Congress, no changes in that bill concerning petroleum exports are likely to be enacted this year.

Gross LPG imports, which accounted for only 6 percent of the total U.S. consumption of these products in 1972, were used to meet almost 13 percent of U.S. domestic requirements in 1983. Net imports followed the same doubling pattern—rising from 4 percent of consumption in 1972 to 8 percent in 1983. The increasing role of LPG imports has been especially stimulated by increases in U.S. natural gas prices permitted under the provisions of the 1978 Natural Gas Policy Act. At the same time, the relative cost advantage maintained by domestic producers of petrochemicals in the early

1970's has deteriorated. New natural gas-processing plants currently under construction in Saudi Arabia, Mexico, Canada, and other countries support an outlook for increased importation of low-cost LPG's and petrochemicals.

The Surge in Petroleum Product Exports

In the last 2 years, exports of refined petroleum products have represented an increasingly important claim on domestic resources. Following the December 1973 Arab oil embargo, quotas were established on the U.S. export of most petroleum products. (See box reviewing Federal export regulations.) Product exports, consisting primarily of residual fuel oil and petroleum coke, had averaged about 200,000 barrels per day before the embargo and remained at that level until 1981. By 1983, product exports had increased to 575,100 barrels per day, accounting for 3.8 percent beyond the total petroleum products supplied to domestic markets in that year.

The increase in exports came about in two steps. First, with the change in Administrations and the final decontrol of crude oil prices in January 1981, there was an immediate increase in product exports of more than 100,000 barrels per day. This initial surge appears to be related more to the psychological impact of decontrol than to any specific market or regulatory gain to exporters from the decontrol. Additional increases followed the October 1981 removal of all remaining quantity restrictions on product exports by the Department of Commerce. Total product exports averaged 366,700 barrels per day in 1981, 578,700 barrels per day in 1982, and 575,100 barrels per day in 1983.

This increase is attributable to residual fuel oil, petroleum coke, distillate fuel oil, and LPG's (see Table 3). Exports are coming almost exclusively from West Coast

and Gulf Coast refineries, with residual fuel oil and coke supplied increasingly as uneconomic by-products of new downstream refining processes. This cheap, low-heat-content coke has been able to compete successfully abroad with coal in the generation of process heat (e.g., in the production of cement).

**Table 3. Petroleum Product Exports, 1978 and 1983
(Thousand Barrels per Day)**

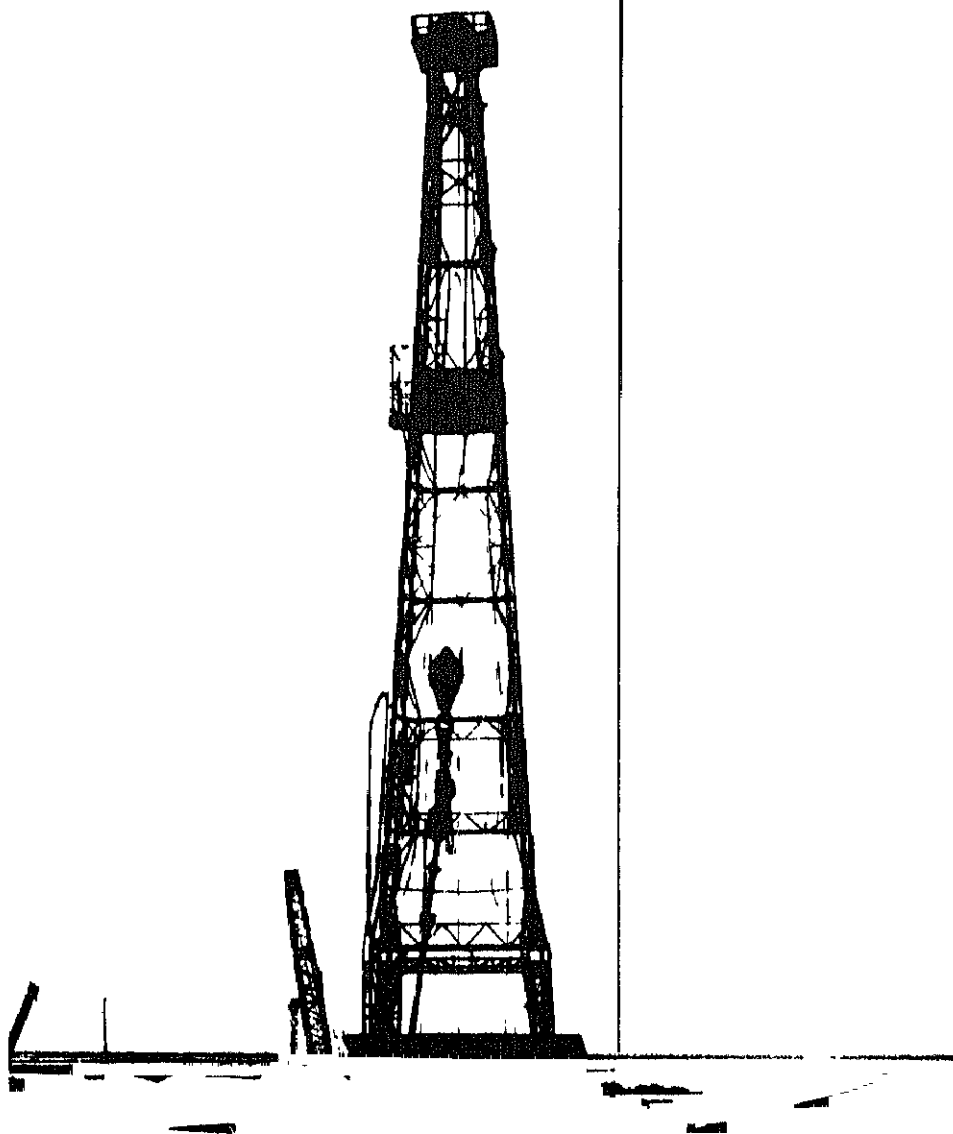
Commodity	1978	1983
Liquefied Petroleum Gases	19.8	73.4
Distillate Fuel Oil	3.3	64.1
Residual Fuel Oil	12.7	184.9
Petroleum Coke	110.8	194.8
Others	57.0	57.9
Total All Products	203.6	575.1

Source: Energy Information Administration, "Annual Petroleum Statement," 1978, and "Petroleum Supply Monthly," 1983.

It is likely that the overall growth in product exports will slow with a continuation of the current economic recovery, as domestic industrial demand for residual fuel oil and coke increases. However, further refinery investments to upgrade the quality of products refined from increasingly heavy crude oils will lower the costs of these less profitable by-products, permanently enhancing their competitive position in international markets.

Meanwhile, exports of crude oil continue to be restricted by Federal law. Certain exchanges, however, are permitted, and approximately 18,600 barrels per day were exchanged with Canada on a barrel-for-barrel basis during 1983. Another 146,000 barrels per day were shipped to U.S. Territories (namely, Puerto Rico and the Virgin Islands) for refining before subsequent consumption or re-export as finished product.

Summary Statistics



Crude Oil¹ and Petroleum Products Overview

		Field Production			Stock Withdrawal ²			Ending Stocks ³
		Total Domestic ⁴	Crude Oil	Natural Gas Plant Production	Crude Oil ⁵	Petroleum Products	Petroleum Products Supplied	Crude Oil ⁵ and Petroleum Products
		Thousand Barrels per Day						Million Barrels
1973	AVERAGE	10,975	9,208	1,738	11	-146	17,308	1,008
1974	AVERAGE	10,498	8,774	1,688	-62	-117	16,653	^a 1,074
1975	AVERAGE	10,045	8,375	1,633	^b -17	^b -145	16,322	1,133
1976	AVERAGE	9,774	8,132	1,603	-39	96	17,461	1,112
1977	AVERAGE	9,913	8,245	1,618	-170	-378	18,431	1,312
1978	AVERAGE	10,328	8,707	1,567	-78	172	18,847	1,278
1979	AVERAGE	10,179	8,552	1,584	-148	-25	18,513	1,341
1980	AVERAGE	10,214	8,597	1,573	-98	-42	17,056	^b 1,392
1981	AVERAGE	10,230	8,572	1,609	^b -290	^b 130	16,058	1,484
1982	January	10,128	8,509	1,578	-401	1,298	16,124	1,456
	February	10,312	8,702	1,563	-242	1,230	16,001	1,428
	March	10,284	8,667	1,572	121	1,047	15,560	1,392
	April	10,188	8,591	1,542	-37	1,583	16,046	1,346
	May	10,244	8,683	1,518	29	-66	14,847	1,347
	June	10,212	8,646	1,511	40	-489	14,998	1,360
	July	10,229	8,658	1,513	-147	-926	14,821	1,393
	August	10,215	8,634	1,524	-440	-44	14,839	1,408
	September	10,279	8,701	1,518	263	-447	15,022	1,414
	October	10,299	8,701	1,530	-548	-47	14,859	1,432
	November	10,359	8,697	1,609	-398	-361	15,009	1,455
	December	10,276	8,598	1,628	128	688	15,487	^b 1,430
	AVERAGE	10,252	8,649	1,550	-136	283	15,296	
1983	January	10,356	8,634	1,668	-567	^b 865	14,765	1,453
	February	10,298	8,660	1,585	-382	1,128	14,772	1,432
	March	10,259	8,677	1,544	56	1,765	15,484	1,375
	April	10,229	8,686	1,502	-438	431	14,779	1,376
	May	10,231	8,682	1,483	68	-759	14,250	1,397
	June	10,262	8,676	1,514	-163	-242	15,281	1,409
	July	10,237	8,647	1,536	118	-922	14,913	1,434
	August	10,257	8,653	1,561	-781	-289	15,366	1,467
	September	10,323	8,666	1,598	-191	-634	15,396	1,492
	October	10,317	8,654	1,604	-180	-456	14,947	1,512
	November	10,310	8,624	1,636	182	-128	15,533	1,510
	December	10,188	8,612	1,533	-306	2,150	16,891	1,453
	AVERAGE	10,272	8,656	1,564	-215	239	15,184	
1984	January	10,282	8,659	1,585	-342	1,085	16,726	1,430
	February*	10,410	8,726	1,629	R 186	R -1,353	R 15,389	R 1,464
	March**	NA	8,718	NA	85	218	15,549	1,433
	AVERAGE	NA	8,700	NA	-28	13	15,899	

¹ Includes lease condensate.

² A negative number indicates an increase in stocks and a positive number indicates a decrease.

³ Stocks are totals as of end of period.

⁴ Includes crude oil, natural gas plant production, other hydrocarbons, and alcohol.

⁵ Includes stocks located in the Strategic Petroleum Reserve.

* For storage in the Strategic Petroleum Reserve.

** Includes Exports

is respondents were added to surveys affecting stocks

See Explanatory Note 10.

Crude Oil¹ and Petroleum Products Overview (continued)

		Imports			Exports			
		Total	Crude Oil ⁶	Petroleum Products	Total	Crude Oil	Petroleum Products	
Thousand Barrels per Day								
1973	AVERAGE	6,256	3,244	3,012	231	2	229	6,025
1974	AVERAGE	6,112	3,477	2,635	221	3	218	5,892
1975	AVERAGE	6,056	4,105	1,951	209	6	204	5,846
1976	AVERAGE	7,313	5,287	2,026	223	8	215	7,090
1977	AVERAGE	8,807	6,615	2,193	243	50	193	8,565
1978	AVERAGE	8,363	6,356	2,008	362	158	204	8,002
1979	AVERAGE	8,456	6,519	1,937	472	235	237	7,984
1980	AVERAGE	6,909	5,263	1,646	544	287	258	6,365
1981	AVERAGE	5,996	4,396	1,599	595	228	367	5,401
1982	January	5,332	3,693	1,639	829	238	591	4,503
	February	4,807	2,990	1,817	804	304	499	4,003
	March	4,484	2,874	1,610	882	321	561	3,602
	April	4,378	2,849	1,529	786	174	611	3,593
	May	4,811	3,309	1,503	803	262	542	4,008
	June	5,327	3,836	1,491	703	94	609	4,624
	July	5,890	4,248	1,642	741	229	512	5,149
	August	5,244	3,851	1,392	858	304	554	4,386
	September	5,414	3,636	1,778	791	184	606	4,624
	October	5,306	3,670	1,636	932	270	662	4,374
	November	5,744	3,862	1,882	786	262	524	4,958
	December	4,606	3,000	1,605	860	193	667	3,746
	AVERAGE	5,113	3,488	1,625	815	236	579	4,298
	1983	January	4,372	2,938	1,434	973	117	856	3,399
February		3,691	2,268	1,423	865	262	603	2,825
March		3,629	2,232	1,398	801	174	627	2,829
April		4,744	3,154	1,590	809	88	721	3,935
May		4,898	3,234	1,664	848	280	568	4,049
June		5,218	3,502	1,716	774	144	630	4,443
July		5,690	3,868	1,822	571	145	426	5,119
August		6,036	4,174	1,863	663	172	491	5,373
September		6,088	4,221	1,867	684	177	507	5,403
October		5,256	3,446	1,810	576	140	436	4,680
November		5,168	3,312	1,856	679	186	494	4,489
December		4,986	3,214	1,772	639	95	544	4,348
AVERAGE		4,988	3,303	1,686	739	164	575	4,249
1984		January	5,347	3,029	2,318	575	153	422	4,772
	February*	R 5,643	R 2,952	R 2,691	582	185	397	5,061
	March**	5,145	3,576	1,570	NA	NA	NA	NA
	AVERAGE	5,373	3,191	2,182	NA	NA	NA	NA

Footnotes continued.

* See Explanatory Note 9.1.

** Italics denote estimates based upon preliminary data. See Explanatory Note 8.

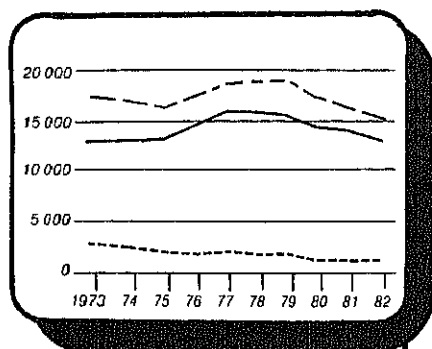
R = Revised data. NA = Not available.

Note: Geographic coverage is the 50 United States and the District of Columbia.

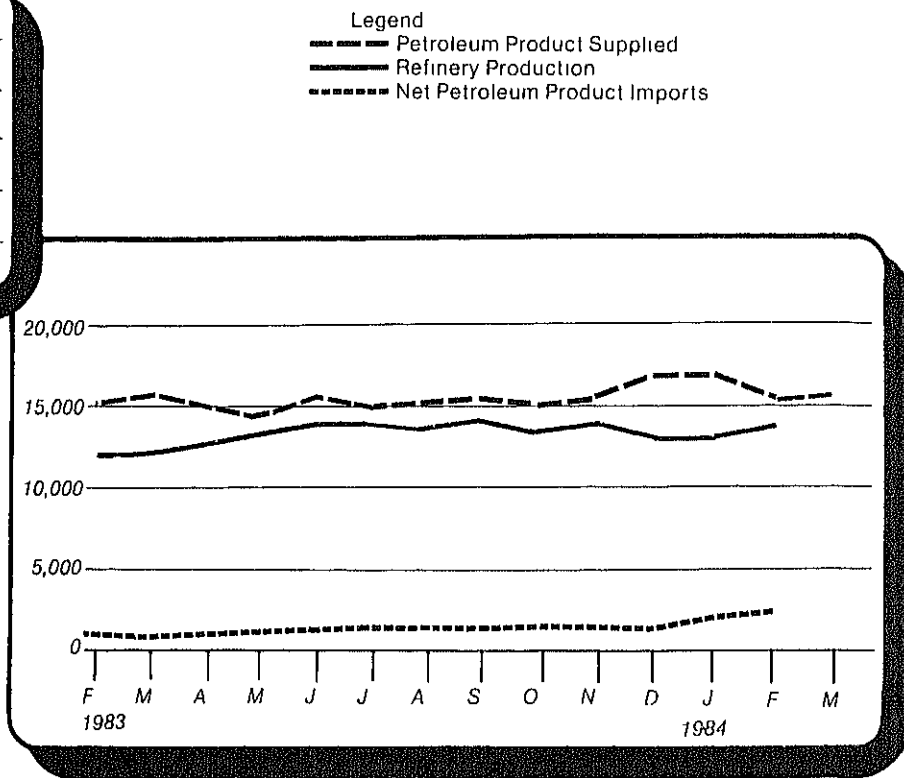
Total may not equal sum of components due to independent rounding.

Petroleum Overview

(Thousand Barrels Per Day)



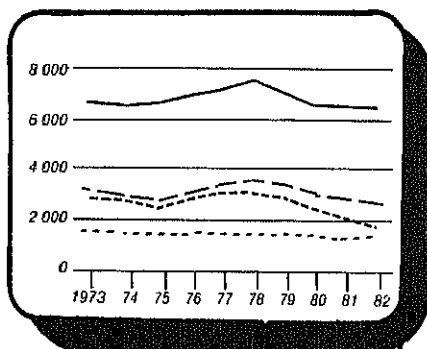
Annual



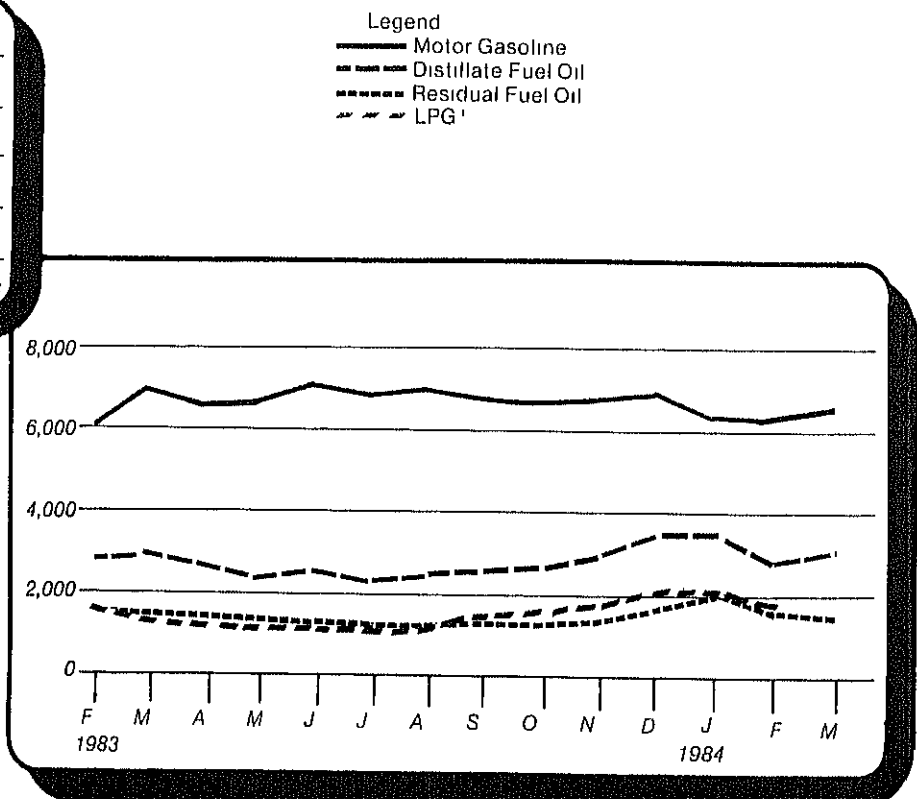
Monthly

Petroleum Products Supplied

(Thousand Barrels Per Day)



Annual

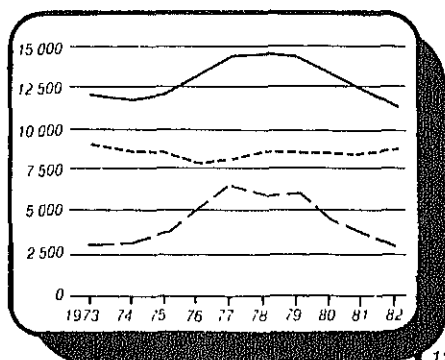


Monthly

¹ Liquefied Petroleum Gases

Crude Oil Supply and Disposition

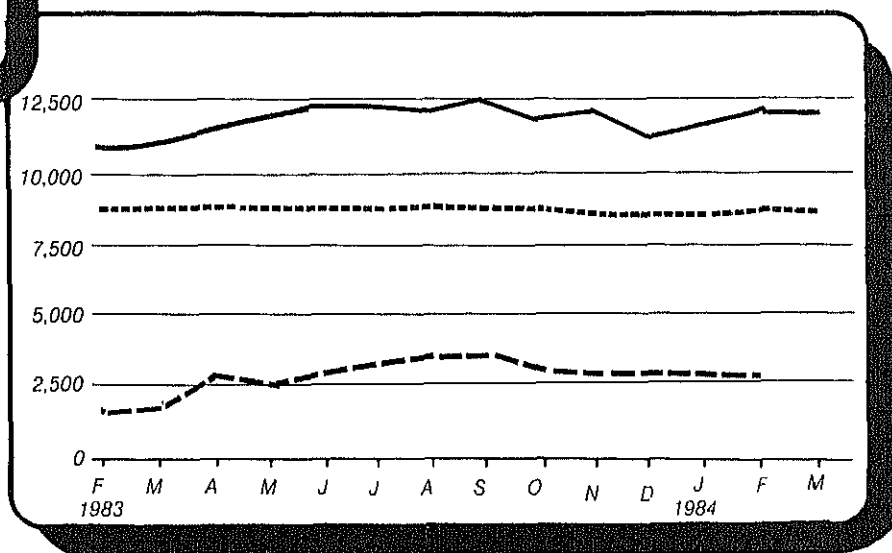
(Thousand Barrels Per Day)



Annual

¹ Excludes SPR Imports

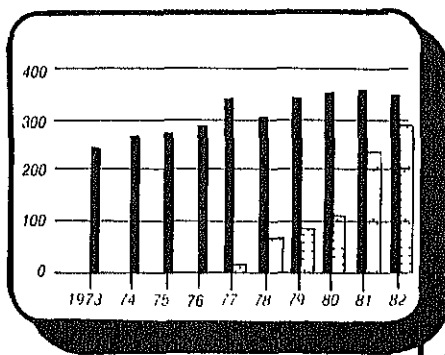
Legend
 — Refinery Inputs
 - - Domestic Crude Oil Production
 - - Net Imports¹



Monthly

Crude Oil Ending Stocks

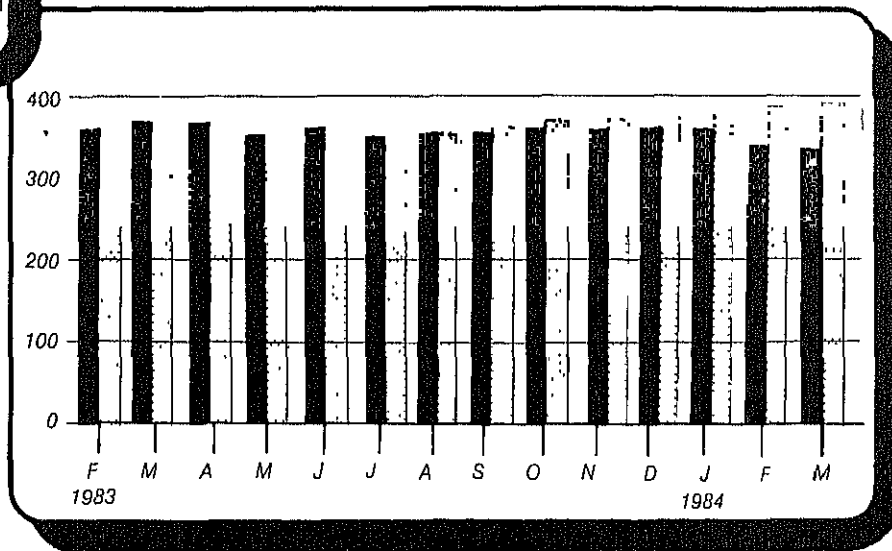
(Million Barrels)



Annual

¹Level and width of Average Stock Ranges for other primary crude oil is based on 3 years of data, July 80-July 83 See Explanatory Note 6

Legend
 ■ Other Primary
 ■ SPR
 ■ Average Stock Range¹



Monthly

Crude Oil¹ Supply and Disposition

		Supply							
		Field Production		Imports			Stock Withdrawal ³		Unac- counted for Crude Oil
		Total Domestic	Alaskan	Total	SPR ⁴	Other	SPR ⁴	Other	
1973	AVERAGE	9,208	198	3,244		3,244		11	3
1974	AVERAGE	8,774	193	3,477		3,477		-62	-25
1975	AVERAGE	8,375	191	4,105		4,105		-17	17
1976	AVERAGE	8,132	173	5,287		5,287		-39	77
1977	AVERAGE	8,245	464	6,615	21	6,594	-20	-150	-6
1978	AVERAGE	8,707	1,229	6,356	162	6,195	-163	84	-57
1979	AVERAGE	8,552	1,401	6,519	67	6,452	-67	-81	-11
1980	AVERAGE	8,597	1,617	5,263	44	5,219	-45	-52	34
1981	AVERAGE	8,572	1,609	4,396	256	4,141	-336	⁶ 46	83
1982	January	8,509	1,705	3,693	170	3,523	-159	-242	101
	February	8,702	1,707	2,990	159	2,830	-213	-29	156
	March	8,667	1,696	2,874	185	2,689	-235	357	2
	April	8,591	1,691	2,849	190	2,659	-233	196	231
	May	8,683	1,707	3,309	204	3,105	-176	205	111
	June	8,646	1,665	3,836	105	3,732	-105	144	133
	July	8,658	1,710	4,248	97	4,150	-97	-50	-20
	August	8,634	1,697	3,851	208	3,643	-208	-232	189
	September	8,701	1,705	3,836	139	3,497	-143	406	-210
	October	8,701	1,706	3,670	216	3,454	-216	-332	249
	November	8,697	1,676	3,862	180	3,683	-179	-219	-124
	December	8,598	1,682	3,000	124	2,877	-125	252	35
		AVERAGE	8,649	1,696	3,488	165	3,323	-174	38
1983	January	8,634	1,698	2,938	219	2,720	-219	-348	238
	February	8,660	1,725	2,268	197	2,071	-197	-185	423
	March	8,677	1,726	2,232	201	2,031	-184	240	134
	April	8,686	1,710	3,154	205	2,949	-197	-241	191
	May	8,682	1,710	3,234	289	2,945	-293	362	148
	June	8,676	1,710	3,502	190	3,312	-188	25	480
	July	8,647	1,705	3,868	274	3,594	-264	382	-74
	August	8,653	1,712	4,174	350	3,823	-358	-423	333
	September	8,666	1,722	4,221	309	3,912	-307	116	-6
	October	8,654	1,731	3,446	202	3,244	-201	21	69
	November	8,624	1,713	3,312	171	3,141	-135	317	137
	December	8,612	1,713	3,214	193	3,021	-252	-55	-141
		AVERAGE	8,656	1,715	3,303	234	3,069	-234	19
1984	January	8,659	1,741	3,029	200	2,829	-173	-169	451
	February*	8,726	1,740	R 2,952	R 85	R 2,868	R -96	R 282	487
	March**	8,718	1,740	3,576	172	3,404	-149	234	NA
	AVERAGE	8,700	1,740	3,191	154	3,037	-140	112	NA

¹ Includes lease condensate.

² Stocks are totals as of end of period.

³ A negative number indicates an increase in stocks and a positive number indicates a decrease.

⁴ Strategic Petroleum Reserve.

⁵ Beginning in January 1983, crude oil used directly as fuel is shown as product supplied.

⁶ Stocks of Alaskan crude oil in transit were included beginning in January 1981. Stock withdrawals are calculated using new basis stock levels. See Explanatory Note 11.

Footnotes continued on following page.

Crude Oil¹ Supply and Disposition (continued)

		Supply	Disposition				Ending Stocks ²		
		Crude Used Directly ⁵	Crude Losses	Refinery Inputs	Exports	Products Supplied ⁵	Total Crude Oil	SPR ⁴	Other Primary
		Thousand Barrels per Day					Million Barrels		
1973	AVERAGE	-19	13	12,431	2	NA	242		242
1974	AVERAGE	-15	13	12,133	3	NA	265		265
1975	AVERAGE	-17	13	12,442	6	NA	271		271
1976	AVERAGE	-18	15	13,416	8	NA	285		285
1977	AVERAGE	-14	16	14,602	50	NA	348	7	340
1978	AVERAGE	-14	16	14,739	158	NA	376	67	309
1979	AVERAGE	-13	16	14,648	235	NA	430	91	339
1980	AVERAGE	-13	15	13,481	287	NA	⁶ 466	108	⁸ 358
1981	AVERAGE	-58	5	12,470	228	NA	594	230	363
1982	January	-63	3	11,599	238	NA	606	235	371
	February	-64	2	11,236	304	NA	613	241	372
	March	-63	5	11,276	321	NA	609	249	361
	April	-65	3	11,392	174	NA	610	256	355
	May	-62	3	11,806	262	NA	609	261	348
	June	-60	7	12,494	94	NA	608	264	344
	July	-60	3	12,446	229	NA	613	267	346
	August	-57	2	11,871	304	NA	626	274	353
	September	-56	4	12,146	184	NA	619	278	341
	October	-51	2	11,749	270	NA	636	285	351
	November	-51	1	11,724	262	NA	648	290	358
	December	-53	1	11,514	193	NA	644	294	350
	AVERAGE	-59	3	11,774	236	NA			
1983	January	NA	2	11,070	117	54	661	301	361
	February	NA	3	10,635	262	69	672	306	366
	March	NA	2	10,854	174	70	670	312	359
	April	NA	2	11,436	88	68	684	318	366
	May	NA	1	11,789	280	63	681	327	355
	June	NA	1	12,287	144	64	686	332	354
	July	NA	2	12,347	145	65	683	341	342
	August	NA	1	12,141	172	64	707	352	355
	September	NA	1	12,445	177	66	713	361	352
	October	NA	1	11,784	140	63	718	367	351
	November	NA	2	12,003	186	64	713	371	341
	December	NA	1	11,217	95	67	722	379	343
	AVERAGE	NA	1	11,672	164	65			
1984	January	NA	1	11,579	153	64	733	384	348
	February*	NA	1	R 12,100	185	65	727	387	340
	March**	NA	NA	12,006	NA	NA	724	392	332
	AVERAGE	NA	NA	11,891	NA	NA			

Footnotes continued.

* See Explanatory Note 9.2.

** Italics denote estimates based upon preliminary data. See Explanatory Note 8.

R = Revised data. NA = Not available.

Note: Geographic coverage is the 50 United States and the District of Columbia.

Total may not equal sum of components due to independent rounding.

Source: See the last page of this section.

Crude Oil and Petroleum Product Imports

		Imports from OPEC Sources ¹									
		Algeria	Libya	Saudi Arabia	United Arab Emirates	Indonesia	Iran	Nigeria	Venezuela	Other OPEC ²	Total Arab OPEC ³
		Thousand Barrels per Day									
1973	AVERAGE	136	164	486	71	213	223	459	1,135	106	2,993
1974	AVERAGE	190	4	461	74	300	469	713	979	88	3,280
1975	AVERAGE	282	232	715	117	390	280	762	702	122	3,601
1976	AVERAGE	432	453	1,230	254	539	298	1,025	700	134	5,066
1977	AVERAGE	559	723	1,380	335	541	535	1,143	690	287	6,193
1978	AVERAGE	649	654	1,144	385	573	555	919	645	226	5,751
1979	AVERAGE	636	658	1,356	281	420	304	1,080	690	212	5,637
1980	AVERAGE	488	554	1,261	172	348	9	857	481	130	4,300
1981	AVERAGE	311	319	1,129	81	366	0	620	406	90	3,323
1982	January	254	161	877	111	289	0	663	376	128	2,859
	February	139	92	693	89	244	0	584	355	102	2,297
	March	91	37	555	155	200	0	522	399	91	2,051
	April	85	0	511	122	215	0	427	426	85	1,871
	May	179	0	601	116	236	0	222	422	54	1,830
	June	115	0	593	94	215	72	537	361	110	2,096
	July	159	0	660	108	327	69	910	356	95	2,685
	August	181	0	489	133	271	27	574	299	133	2,107
	September	179	0	432	57	191	21	477	518	69	1,943
	October	249	7	494	61	242	108	313	504	106	2,084
	November	247	14	489	47	283	34	479	528	115	2,235
	December	155	0	237	12	265	88	462	399	73	1,690
	AVERAGE	170	26	552	92	248	35	514	412	97	2,146
1983	January	204	0	282	47	255	43	186	324	43	1,384
	February	104	0	214	9	217	0	92	371	28	1,035
	March	63	0	103	0	138	0	121	425	173	1,023
	April	228	0	180	(³)	210	0	186	508	125	1,438
	May	284	0	122	12	324	37	352	444	69	1,645
	June	300	0	175	40	502	38	402	335	146	1,938
	July	282	0	182	58	464	112	525	431	187	2,240
	August	370	0	426	45	416	213	464	477	230	2,641
	September	413	0	587	21	516	86	324	472	208	2,627
	October	261	0	638	16	368	12	307	337	169	2,108
	November	165	0	545	56	318	21	214	435	135	1,891
	December	141	0	569	45	291	9	329	408	163	1,957
	AVERAGE	235	0	336	29	335	48	294	414	140	1,832
1984	January	242	0	463	114	278	0	243	547	51	1,939
	February	348	0	324	33	267	0	244	481	174	1,871
	AVERAGE	293	0	396	75	272	0	243	515	111	1,906

¹ Excludes petroleum imported into the United States indirectly from OPEC countries, primarily from Caribbean and West European areas, as refined petroleum products which were refined from crude oil produced in OPEC countries.

² Includes Ecuador, Gabon, Iraq, Kuwait, and Qatar.

³ Includes Algeria, Libya, Saudi Arabia, United Arab Emirates, Iraq, Kuwait, and Qatar.

Footnotes continued on following page.

Crude Oil and Petroleum Product Imports (continued)

		Imports from Non-OPEC Sources ⁴										
		Baha- mas	Canada	Mexico	Nether- lands Antilles	Trinidad and Tobago	United Kingdom	Puerto Rico	Virgln Islands	Other Non OPEC	Total Non OPEC	Total Imports
		Thousand Barrels per Day										
1973	AVERAGE	174	1,325	16	585	255	15	99	329	465	3,263	6,256
1974	AVERAGE	164	1,070	8	511	251	8	90	391	340	2,832	6,112
1975	AVERAGE	152	846	71	332	242	14	90	406	300	2,454	6,056
1976	AVERAGE	118	599	87	275	274	31	88	422	353	2,247	7,313
1977	AVERAGE	171	517	179	211	289	126	105	466	550	2,614	8,807
1978	AVERAGE	160	467	318	229	253	180	94	429	484	2,613	8,363
1979	AVERAGE	147	538	439	231	190	202	92	431	548	2,819	8,456
1980	AVERAGE	78	455	533	225	176	176	88	388	491	2,609	6,909
1981	AVERAGE	74	447	522	197	133	375	62	327	534	2,672	5,996
1982	January	58	513	425	179	106	346	62	334	452	2,474	5,332
	February	67	537	476	221	120	181	38	362	508	2,510	4,807
	March	43	437	503	189	118	294	62	307	480	2,433	4,484
	April	82	360	476	184	166	247	36	266	690	2,507	4,378
	May	77	419	766	152	95	516	47	302	607	2,981	4,811
	June	32	481	797	148	129	557	58	322	708	3,231	5,327
	July	64	536	783	158	118	433	38	376	698	3,204	5,890
	August	80	443	853	145	106	520	24	317	650	3,137	5,244
	September	92	493	897	195	89	631	51	278	746	3,472	5,414
	October	45	459	682	148	109	666	52	262	801	3,222	5,306
	November	51	553	860	212	90	623	81	334	706	3,508	5,744
	December	88	561	689	174	102	438	48	336	480	2,916	4,606
	AVERAGE	65	482	685	175	112	456	50	316	627	2,968	5,113
1983	January	68	536	849	218	73	315	40	299	588	2,988	4,372
	February	92	592	722	179	81	193	50	192	554	2,655	3,691
	March	86	488	760	187	78	240	43	162	563	2,606	3,629
	April	167	452	981	216	85	421	20	183	781	3,306	4,744
	May	135	501	944	153	108	483	42	235	651	3,252	4,898
	June	137	576	831	181	120	424	48	252	712	3,281	5,218
	July	69	633	849	191	103	369	37	364	836	3,450	5,890
	August	142	540	891	194	90	461	40	313	725	3,395	6,036
	September	137	523	832	251	82	472	33	308	822	3,461	6,088
	October	164	539	771	172	106	414	48	370	565	3,149	5,256
	November	143	542	717	144	110	334	55	440	793	3,278	5,168
	December	119	592	718	153	113	429	22	271	613	3,030	4,986
	AVERAGE	122	542	822	187	96	381	40	283	684	3,156	4,988
1984	January	152	624	705	277	54	382	53	390	772	3,408	5,347
	February	142	620	747	288	77	338	58	418	1,083	3,772	5,643
	AVERAGE	147	622	725	282	65	361	56	403	922	3,584	5,490

Footnotes continued.

⁴ Includes petroleum imported into the United States indirectly from OPEC countries, primarily from Caribbean and West European areas, as refined petroleum products which were refined from crude oil produced in OPEC countries.

(*) = Less than 500 barrels per day.

Note: Beginning in October 1977, Strategic Petroleum Reserve imports are included.

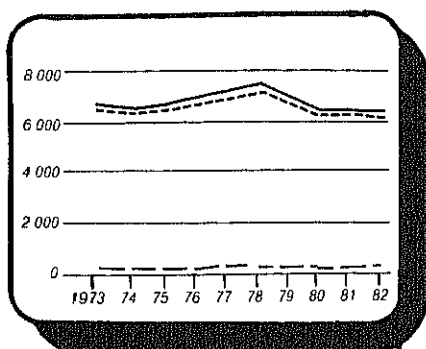
Total may not equal sum of components due to independent rounding.

Geographic coverage: The 50 United States and the District of Columbia.

Source: See the last page of this section.

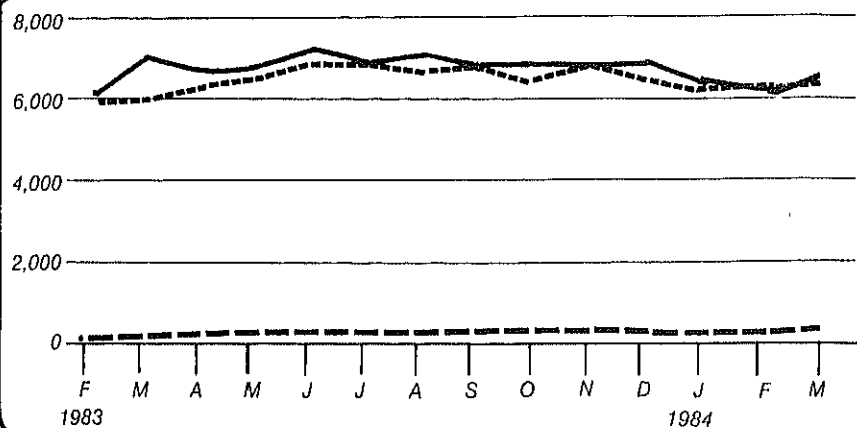
Motor Gasoline Supply and Disposition

(Thousand Barrels Per Day)



Annual

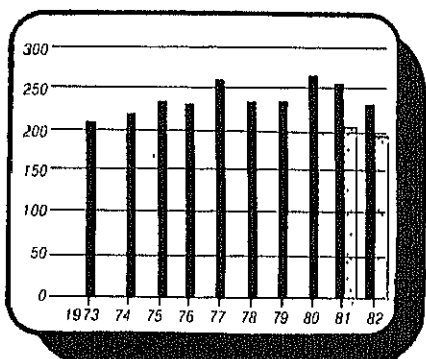
Legend
 — Product Supplied
 - - - Finished Gasoline Production
 . . . Finished Gasoline Imports



Monthly

Motor Gasoline Ending Stocks

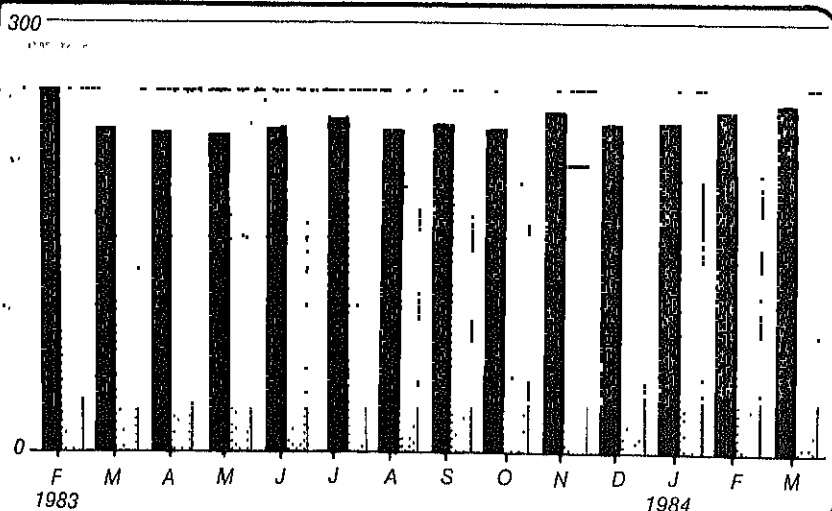
(Million Barrels)



Annual

Legend

■ Total Motor Gasoline¹
 □ Finished Motor Gasoline
 ▨ Average Stock Range²



Monthly

¹Includes motor gasoline blending components

²Level and width of Average Stock Range for total motor gasoline based on 3 years of data, July 80-June 83. See Explanatory Note 6

Finished Motor Gasoline Supply and Disposition

		Supply			Disposition				Ending Stocks ¹	
		Total Produc- tion	Imports ²	Stock With- drawal ^{2 3}	Exports	Products Supplied			Total Motor Gasoline ⁵	Finished Motor Gasoline
						Total	Unleaded ⁴	Unleaded		
Thousand Barrels per Day								Percent of Total	Million Barrels	
1973	AVERAGE	6,535	134	9	4	6,674	NA	NA	209	
1974	AVERAGE	6,360	204	-24	2	6,537	NA	NA	⁶ 218	
1975	AVERAGE	6,520	184	⁶ -28	2	6,675	NA	NA	235	
1976	AVERAGE	6,841	131	10	3	6,978	NA	NA	231	
1977	AVERAGE	7,033	217	-72	2	7,177	1,976	27.5	258	
1978	AVERAGE	7,169	190	54	1	7,412	2,521	34.0	238	
1979	AVERAGE	6,852	181	2	(⁶)	7,034	2,798	39.8	237	
1980	AVERAGE	6,506	140	-66	1	6,579	3,067	46.6	⁶ 261	
1981	AVERAGE ⁷	6,405	157	⁶ 28	2	6,588	3,264	49.5	253	
1982	January	6,167	128	-316	18	5,961	3,067	51.5	261	213
	February	5,899	133	172	8	6,196	3,210	51.8	257	208
	March	5,994	183	334	44	6,466	3,358	51.9	247	198
	April	6,095	185	650	33	6,897	3,495	50.7	221	179
	May	6,319	182	177	23	6,655	3,415	51.3	214	173
	June	6,754	230	-134	14	6,835	3,565	52.2	219	177
	July	6,768	225	-178	24	6,790	3,577	52.7	226	183
	August	6,419	291	-81	16	6,614	3,526	53.3	227	185
	September	6,527	223	-198	22	6,531	3,404	52.1	234	191
	October	6,262	185	-42	15	6,391	3,351	52.4	234	192
	November	6,273	211	101	11	6,574	3,451	52.5	230	189
	December	6,542	178	-165	7	6,549	3,485	53.2	⁶ 235	⁶ 194
	AVERAGE	6,338	197	25	20	6,539	3,409	52.1		
1983	January	6,020	148	⁶ -186	(⁶)	5,981	3,352	56.0	251	208
	February	5,848	142	32	(⁶)	6,022	3,257	54.1	251	207
	March	5,897	205	765	23	6,843	3,620	52.9	224	184
	April	6,202	273	27	1	6,501	3,505	53.9	221	183
	May	6,386	284	-128	1	6,540	3,547	54.2	225	187
	June	6,646	265	118	22	7,008	3,796	54.2	223	183
	July	6,704	297	-210	18	6,773	3,752	55.4	231	190
	August	6,539	260	159	13	6,946	3,836	55.2	226	185
	September	6,582	285	-160	14	6,693	3,671	54.8	230	190
	October	6,188	335	60	2	6,581	3,698	56.2	228	188
	November	6,636	269	-274	2	6,629	3,714	56.0	236	196
	December	6,314	217	340	25	6,846	3,967	57.9	222	185
	AVERAGE	6,332	249	47	10	6,617	3,646	55.1		
1984	January	6,037	233	-1	1	6,268	3,606	57.5	225	186
	February*	R 6,320	R 303	R -384	2	R 6,297	3,585	57.5	R 237	R 197
	March**	6,374	365	-253	NA	6,473	NA	NA	242	202
	AVERAGE	6,242	300	-209	NA	6,328	NA	NA		

¹ Stocks are totals as of end of period.

² Beginning in 1981, excludes blending components.

³ A negative number indicates an increase in stocks and a positive number indicates a decrease.

⁴ Includes gasoline.

⁵ Includes motor gasoline blending components.

⁶ In January 1975, 1981, and 1983, numerous respondents were added to surveys affecting stocks reported and stock withdrawal calculations. See Explanatory Note 10.

⁷ Beginning in January 1981, survey forms were modified. See Explanatory Note 12.

* See Explanatory Note 9.3.

** Italics denote estimates based upon preliminary data. See Explanatory Note 8.

R = Revised data. NA = Not available. (s) = Less than 500 barrels per day.

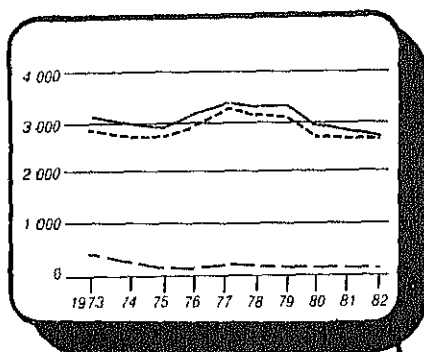
Note: Geographic coverage is the 50 United States and the District of Columbia.

Total may not equal sum of components due to independent rounding.

Source: See the last page of this section.

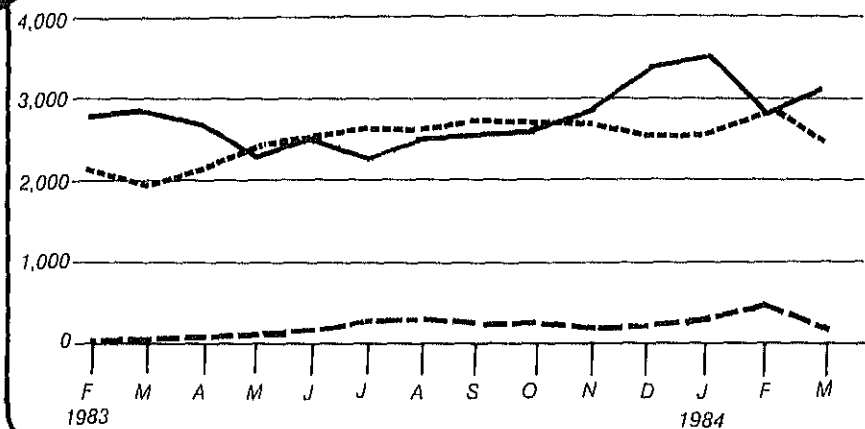
Distillate Fuel Oil Supply and Disposition

(Thousand Barrels Per Day)



Annual

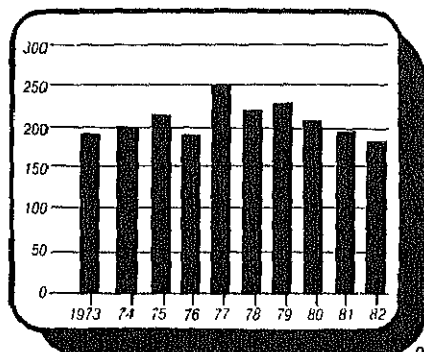
Legend
 Product Supplied
 Total Production
 Imports



Monthly

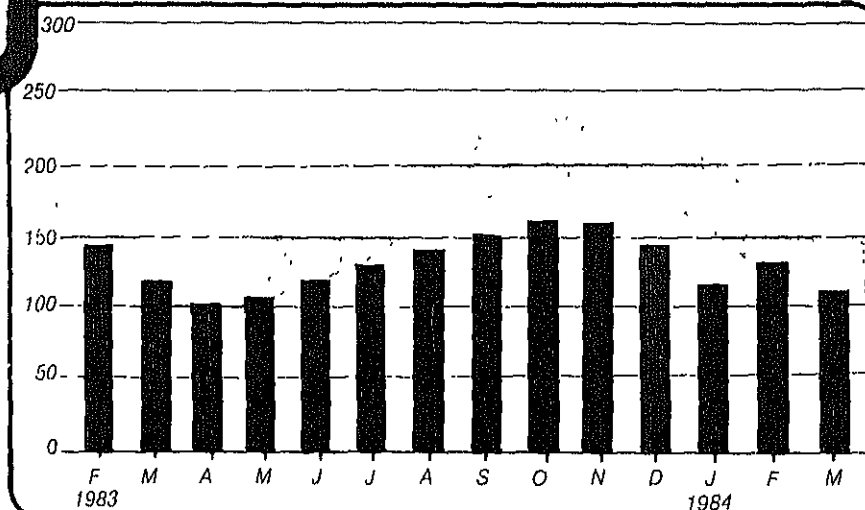
Distillate Fuel Oil Ending Stocks

(Million Barrels)



Annual

Legend
 Average Stock Range¹



Monthly

¹ Level and width of Average Stock Range for distillate fuel oil is based on 3 years of data, July 80-July 83. See Explanatory Note 6.

Distillate Fuel Oil Supply and Disposition

		Supply				Disposition		Ending Stocks ¹
		Total Production	Imports	Stock Withdrawal ²	Crude Used Directly ³	Exports	Products Supplied ³	
		Thousand Barrels per Day						Million Barrels
1973	AVERAGE	2,822	392	-115	2	9	3,092	196
1974	AVERAGE	2,669	289	-9	2	2	2,948	⁴ 200
1975	AVERAGE	2,654	155	⁴ 40	2	1	2,851	209
1976	AVERAGE	2,924	146	62	1	1	3,133	186
1977	AVERAGE	3,278	250	-176	1	1	3,352	250
1978	AVERAGE	3,167	173	93	1	3	3,432	216
1979	AVERAGE	3,153	193	-34	1	3	3,311	229
1980	AVERAGE	2,662	142	64	1	3	2,866	⁴ 205
1981	AVERAGE ⁵	2,613	173	⁴ 38	10	5	2,829	192
1982	January	2,591	97	876	10	90	3,484	164
	February	2,427	132	605	11	90	3,085	147
	March	2,288	48	682	10	84	2,945	126
	April	2,358	59	612	13	64	2,978	108
	May	2,616	74	-183	10	75	2,444	114
	June	2,729	102	-335	10	55	2,452	124
	July	2,734	125	-789	11	24	2,058	148
	August	2,507	80	-339	10	40	2,218	159
	September	2,657	61	-85	12	139	2,507	161
	October	2,838	91	-289	8	66	2,581	170
	November	2,860	145	-514	8	24	2,475	186
	December	2,655	109	225	10	143	2,855	⁴ 179
	AVERAGE	2,606	93	35	10	74	2,671	
1983	January	2,314	58	⁴ 561	NA	173	2,760	168
	February	2,136	58	742	NA	105	2,832	147
	March	1,991	42	926	NA	59	2,900	119
	April	2,169	73	518	NA	47	2,713	103
	May	2,444	141	-193	NA	50	2,341	109
	June	2,545	175	-154	NA	40	2,526	114
	July	2,600	259	-556	NA	55	2,248	131
	August	2,612	302	-403	NA	43	2,467	144
	September	2,725	253	-374	NA	37	2,568	155
	October	2,682	255	-275	NA	55	2,606	163
	November	2,679	189	65	NA	54	2,879	161
	December	2,524	212	675	NA	54	3,358	140
	AVERAGE	2,454	169	124	NA	64	2,682	
1984	January	2,585	270	676	NA	40	3,490	119
	February*	R 2,864	R 458	R -439	NA	41	R 2,842	R 132
	March**	2,436	117	573	NA	NA	3,078	113
	AVERAGE	2,623	278	285	NA	NA	3,143	

¹ Stocks are totals as of end of period.

² A negative number indicates an increase in stocks and a positive number indicates a decrease.

³ Beginning in January 1984, product supplied for distillate fuel oil does not include crude oil used directly. See Explanatory Note 4.

⁴ In January 1975, 1981, and 1984, numerous respondents were added to surveys affecting stocks reported and stock withdrawal calculations. See Explanatory Note 10.

⁵ Beginning in January 1981, survey forms were modified. See Explanatory Note 12.

* See Explanatory Note 9.4.

** Italics denote estimates based upon preliminary data. See Explanatory Note 8.

R = Revised data. NA = Not available. (s) = Less than 500 barrels per day.

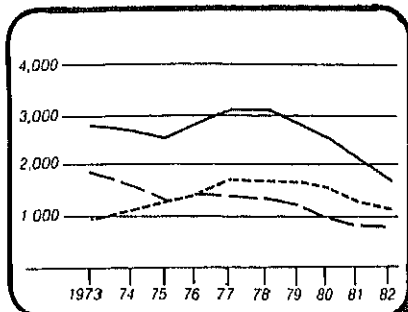
Note: Geographic coverage is the 50 United States and the District of Columbia.

Total may not equal sum of components due to independent rounding.

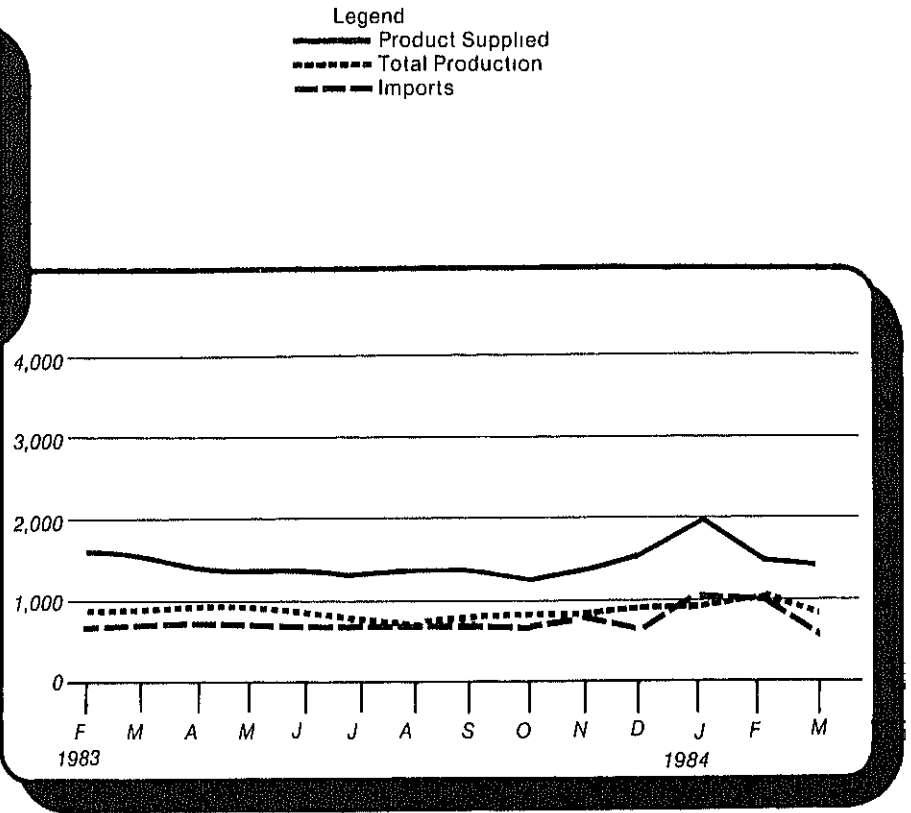
Source: See the last page of this section.

Residual Fuel Oil Supply and Disposition

(Thousand Barrels Per Day)



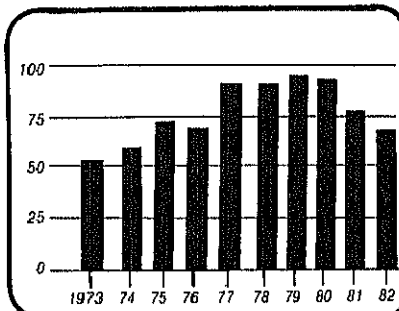
Annual



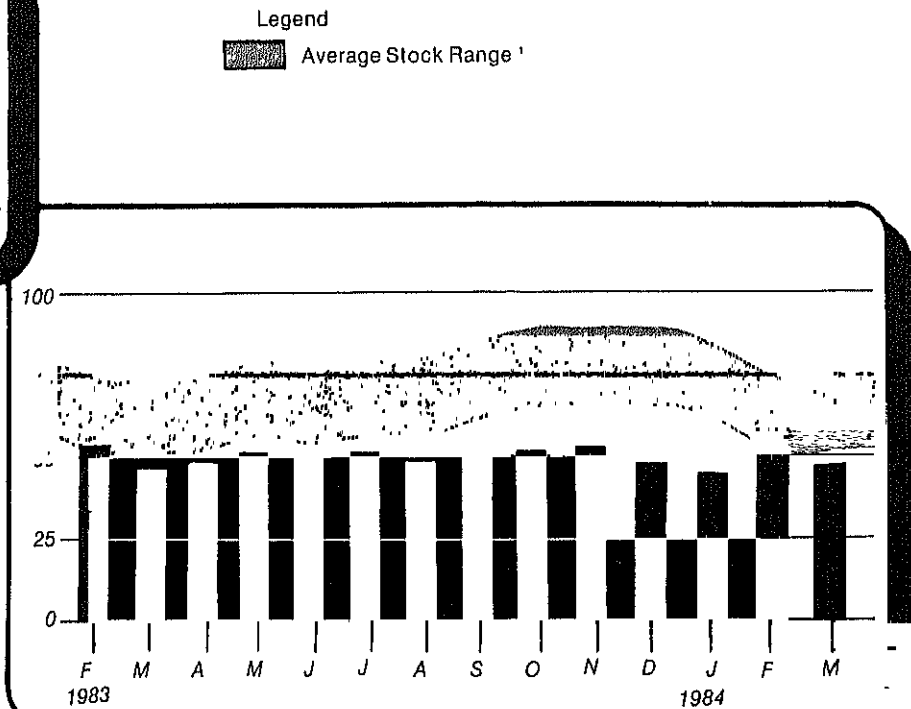
Monthly

Residual Fuel Oil Ending Stocks

(Million Barrels)



¹ Level and width of Average Stock Range for residual fuel oil based on 3 years of data, July 80-June 83. See Explanatory Note 6.



Monthly

Residual Fuel Oil Supply and Disposition

		Supply				Disposition		Ending Stocks ¹
		Total Production	Imports	Stock Withdrawal ²	Crude Used Directly ³	Exports	Products Supplied ³	
		Thousand Barrels per Day						Million Barrels
1973	AVERAGE	971	1,853	5	17	23	2,822	53
1974	AVERAGE	1,070	1,587	-17	13	14	2,639	⁴ 60
1975	AVERAGE	1,235	1,223	⁴ 2	15	15	2,462	74
1976	AVERAGE	1,377	1,413	5	17	12	2,801	72
1977	AVERAGE	1,754	1,359	-48	13	6	3,071	90
1978	AVERAGE	1,667	1,355	-1	13	13	3,023	90
1979	AVERAGE	1,687	1,151	-15	12	9	2,826	96
1980	AVERAGE	1,580	939	10	12	33	2,508	⁴ 92
1981	AVERAGE ⁵	1,321	800	⁴ 37	48	118	2,088	78
1982	January	1,235	831	301	53	235	2,185	69
	February	1,186	956	363	53	213	2,344	58
	March	1,123	912	12	53	197	1,903	58
	April	1,166	788	150	52	234	1,923	54
	May	1,128	742	-172	52	191	1,560	59
	June	1,074	652	-57	50	217	1,501	61
	July	1,028	657	56	49	239	1,550	59
	August	965	551	203	47	235	1,531	53
	September	1,008	872	-306	44	148	1,470	62
	October	955	783	-57	43	234	1,490	64
	November	989	837	-94	43	182	1,591	66
	December	989	747	6	43	186	1,598	⁴ 66
	AVERAGE	1,070	776	32	48	209	1,716	
1983	January	935	691	⁴ 243	NA	294	1,574	61
	February	857	632	270	NA	191	1,568	53
	March	833	686	220	NA	169	1,569	46
	April	942	743	-10	NA	310	1,364	47
	May	930	709	-139	NA	190	1,310	51
	June	832	676	28	NA	219	1,317	50
	July	771	682	-58	NA	90	1,306	52
	August	706	705	115	NA	185	1,362	48
	September	815	690	-47	NA	134	1,324	50
	October	799	634	-56	NA	153	1,224	51
	November	848	777	-101	NA	167	1,358	54
	December	893	646	173	NA	141	1,570	49
	AVERAGE	846	689	52	NA	185	1,403	
1984	January	953	1,061	119	NA	151	1,981	45
	February*	R 1,003	R 1,107	R - 420	NA	87	R 1,602	R 58
	March**	<i>862</i>	<i>584</i>	<i>146</i>	NA	NA	<i>1,447</i>	<i>48</i>
	AVERAGE	938	913	-43	NA	NA	1,678	

¹ Stocks are totals as of end of period.

² A negative number indicates an increase in stocks and a positive number indicates a decrease.

³ Beginning in January 1983, product supplied for residual fuel oil does not include crude oil used directly. See Explanatory Note 4.

⁴ In January 1975, 1981, and 1983, numerous respondents were added to surveys affecting stocks reported and stock withdrawal calculations. See Explanatory Note 10.

⁵ Beginning in January 1981, survey forms were modified. See Explanatory Note 12.

* See Explanatory Note 9.4.

** Italics denote estimates based upon preliminary data. See Explanatory Note 8.

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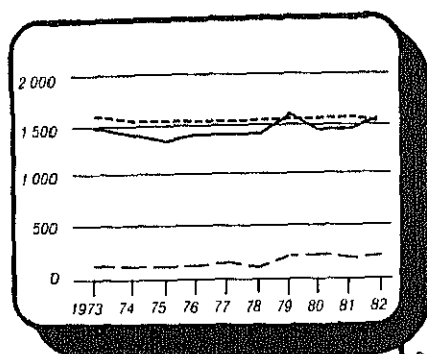
Note: Geographic coverage is the 50 United States and the District of Columbia.

Total may not equal sum of components due to independent rounding.

Source: See the last page of this section.

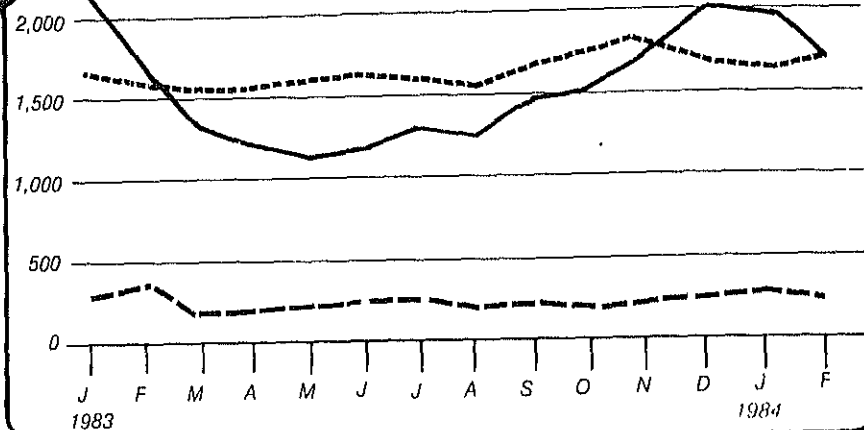
Liquefied Petroleum Gases Supply and Disposition

(Thousand Barrels Per Day)



Annual

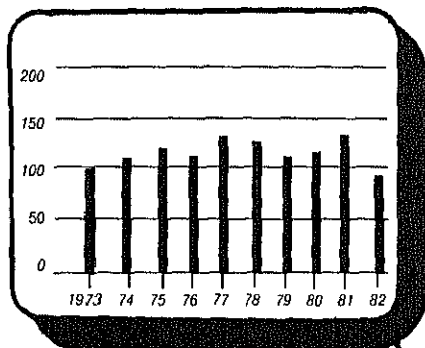
Legend
 — Product Supplied
 - - - Total Production
 . . . Imports



Monthly

Liquefied Petroleum Gases Ending Stocks

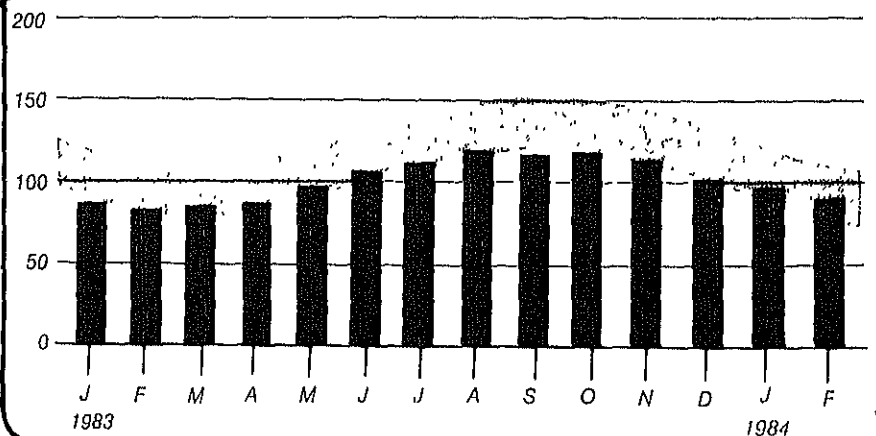
(Million Barrels)



Annual

Legend
 [] Average Stock Range¹

¹ Level and width of Average Stock range for liquefied petroleum gases based on 3 years of data, July 80-June 83. See Explanatory Note 6.



Monthly

Liquefied Petroleum Gases Supply and Disposition

		Supply			Disposition			Ending Stocks ¹
		Total Production	Imports	Stock Withdrawal ²	Refinery Inputs	Exports	Products Supplied	
		Thousand Barrels per Day						Million Barrels
1973	AVERAGE	1,600	132	-35	220	27	1,449	99
1974	AVERAGE	1,565	123	-38	220	25	1,406	³ 113
1975	AVERAGE	1,527	112	³ -35	246	26	1,333	125
1976	AVERAGE	1,535	130	24	260	25	1,404	116
1977	AVERAGE	1,566	161	-55	233	18	1,422	136
1978	AVERAGE	1,537	123	12	239	20	1,413	132
1979	AVERAGE	1,556	217	70	236	15	1,592	111
1980	AVERAGE	1,535	216	-27	233	21	1,469	³ 120
1981	AVERAGE	1,571	244	³ -18	289	42	1,466	135
1982	January	1,565	314	443	391	67	1,863	121
	February	1,466	291	243	327	51	1,621	114
	March	1,544	223	211	289	74	1,815	108
	April	1,506	188	98	257	77	1,458	105
	May	1,565	186	-71	234	43	1,403	107
	June	1,515	192	-86	262	106	1,254	109
	July	1,476	227	-13	253	37	1,399	110
	August	1,511	125	-45	254	61	1,276	111
	September	1,538	247	37	274	85	1,463	110
	October	1,517	194	97	306	81	1,421	107
	November	1,542	267	175	363	37	1,583	102
	December	1,580	258	256	395	56	1,642	³ 94
	AVERAGE	1,528	226	111	300	65	1,499	
1983	January	1,662	240	³ 618	313	118	2,088	84
	February	1,560	305	84	237	76	1,636	81
	March	1,517	166	-51	189	127	1,316	83
	April	1,531	124	-107	198	116	1,232	86
	May	1,545	167	-326	207	84	1,094	96
	June	1,593	172	-333	205	59	1,169	106
	July	1,571	191	-206	217	55	1,284	112
	August	1,505	160	-183	229	29	1,225	118
	September	1,625	178	-23	236	86	1,457	119
	October	1,688	160	-61	268	32	1,487	121
	November	1,784	180	78	361	33	1,648	118
	December	1,644	247	575	358	66	2,043	³ 101
	AVERAGE	1,602	190	6	252	73	1,473	
1984	January	1,610	269	³ 470	333	23	1,993	93
	February*	1,690	237	146	323	41	1,708	89
	AVERAGE	1,648	254	314	329	32	1,855	

¹ Stocks are totals as of end of period.

² A negative number indicates an increase in stocks and a positive number indicates a decrease.

³ In January 1975, 1981, 1983, and 1984, a new stock basis was established affecting stocks reported and stock withdrawal calculations. See Explanatory Note 10.

* See Explanatory Note 9.5.

Note: Geographic coverage is the 50 United States and the District of Columbia.

Total may not equal sum of components due to independent rounding.

Source: See the last page of this section.

Other Petroleum Products¹ Supply and Disposition

		Supply			Disposition			Ending Stocks ²
		Total Production	Imports	Stock Withdrawal ³	Refinery Inputs	Exports	Products Supplied	
		Thousand Barrels per Day						Million Barrels
1973	AVERAGE	3,693	502	-9	750	166	3,270	208
1974	AVERAGE	3,558	432	-28	665	174	3,123	⁴ 218
1975	AVERAGE	3,424	277	⁴ -2	537	160	3,002	219
1976	AVERAGE	3,643	206	-5	524	175	3,145	220
1977	AVERAGE	3,912	205	-27	514	165	3,410	230
1978	AVERAGE	4,046	166	14	492	167	3,568	225
1979	AVERAGE	4,153	195	-37	352	209	3,749	238
1980	AVERAGE	3,956	210	-23	311	198	3,634	⁴ 247
1981	AVERAGE	3,739	226	⁴ 46	723	199	3,088	282
1982	January	3,171	269	-7	624	180	2,631	282
	February	3,403	305	-153	663	138	2,755	287
	March	3,466	243	-191	725	161	2,631	293
	April	3,408	309	73	796	204	2,790	290
	May	3,317	318	184	824	210	2,785	285
	June	3,547	315	123	812	216	2,954	281
	July	3,660	408	-1	856	187	3,023	281
	August	3,583	346	217	743	202	3,201	274
	September	3,533	375	105	749	213	3,051	271
	October	3,529	383	244	915	266	2,976	264
	November	3,498	423	-28	837	269	2,786	264
	December	3,324	313	366	885	275	2,842	⁴ 253
	AVERAGE	3,453	334	80	787	211	2,869	
1983	January	3,222	287	⁴ -371	570	271	2,307	271
	February	3,270	287	-1	680	232	2,645	271
	March	3,400	298	-94	570	249	2,786	273
	April	3,363	377	3	596	247	2,901	273
	May	3,448	364	26	694	242	2,902	273
	June	3,674	427	99	715	292	3,197	270
	July	3,703	393	106	757	209	3,237	266
	August	3,774	435	23	689	242	3,302	266
	September	3,861	460	-31	768	236	3,287	267
	October	3,579	427	-124	701	195	2,985	270
	November	3,560	442	101	912	238	2,955	267
	December	3,106	450	387	877	257	2,808	⁴ 255
	AVERAGE	3,498	388	10	711	242	2,943	
1984	January	3,391	486	⁴ -177	561	207	2,931	253
	February*	3,582	586	-256	751	225	2,935	261
	AVERAGE	3,483	534	-215	653	216	2,933	

¹ Includes pentanes plus, other hydrocarbons and alcohol, unfinished oils, gasoline blending components and all finished petroleum products except finished motor gasoline, distillate fuel oil, residual fuel oil, and liquefied petroleum gases.

² Stocks are totals as of end of period.

³ A negative number indicates an increase in stocks and a positive number indicates a decrease.

⁴ In January 1975, 1981, 1983, and 1984, a new stock basis was established affecting stocks reported and stock withdrawal calculations. See Explanatory Note 10.

* See Explanatory Note 9.6.

Note: Geographic coverage is the 50 United States and the District of Columbia.

Total may not equal sum of components due to independent rounding.

Source: See the last page of this section.

Sources

1. 1973 through 1976: U.S. Department of the Interior, Bureau of Mines, Mineral Industry Surveys, "Petroleum Statement, Annual" and "PAD Districts Supply/Demand, Annual."
2. 1977 through 1980: Energy Information Administration (EIA), *Energy Data Reports*, "Petroleum Statement, Annual" and "PAD Districts Supply/Demand, Annual," and unleaded gasoline data from *Monthly Petroleum Statistics Report*.
3. January 1981 through December 1982: EIA, *Petroleum Supply Annual*.
4. January 1983 through February 1984: Detailed statistics in appropriated issued of the Petroleum Supply Monthly. (see Explanatory Notes 9.1 through 9.6).
5. March 1984: Estimates based on EIA weekly data (except domestic crude oil production)(see Explanatory Note 1.1).
6. January 1983 through March 1984: Domestic crude oil production estimate based on historical statistics from State Conservation Agencies and the U.S. Geological Survey. (See Explanatory Note 3).

Detailed Statistics



Table 1. U.S. Petroleum Balance, February 1984

	Current Month		Year-to-date	
	Thousand Barrels	Thousand Barrels per Day	Thousand Barrels	Thousand Barrels per Day
Crude Oil (Including Lease Condensate)				
Field Production				
(1) Alaska	E 50,472	1,740	E 104,434	1,741
(2) Lower 48 States	E 202,569	6,985	E 417,026	6,950
(3) Total U.S.	E 253,041	8,726	E 521,460	8,691
Net Imports				
(4) Imports (Gross Excluding SPR)	83,158	2,868	170,855	2,848
(5) SPR Imports	2,452	85	8,649	144
(6) Exports	5,355	185	10,094	168
(7) Imports (Net Including SPR)	80,254	2,767	169,410	2,824
Other Sources				
(8) SPR Withdrawal (+) or Addition (-) ..	-2,789	-96	-8,149	-136
(9) Other Stock Withdrawal (+) or Addition (-) ..	8,186	282	2,950	49
(10) Product Supplied and Losses ..	-1,904	-66	-3,929	-65
(11) Unaccounted for ¹ ..	14,116	487	28,107	468
(12) Total Other Sources ..	17,609	607	18,979	316
(13) Crude Input to Refineries ..	350,904	12,100	709,849	11,831
(13) = (3) + (7) + (12)				
Natural Gas Plant Liquids (NGPL)				
(14) Field Production ..	47,250	1,629	96,396	1,607
(15) Net Imports ² ..	1,755	60	2,352	38
(16) Stock Withdrawal (+) or Addition (-) ² ..	219	8	463	8
(17) Total NGPL Supply	49,224	1,697	99,211	1,652
Other Liquids				
Unfinished Oils and Gasoline Blending Components, Total				
(18) Stock Withdrawal (+) or Addition (-) ..	549	19	-5,832	-97
(19) Imports ..	8,087	279	17,957	289
(20) Other Hydrocarbons and Alcohol New Supply (Field Production) ..	1,598	55	2,765	46
(21) Refinery Processing Gain ¹ ..	17,373	599	32,232	537
(22) Crude Oil Product Supplied ..	1,884	65	3,873	65
(23) Total Other Liquids	29,491	1,017	50,995	850
(23) = (18) through (22)				
(24) Total Production of Products ³ ..	429,619	14,814	860,051	14,333
(24) = (13) + (17) + (23)				
Net Imports of Refined Products ³				
(25) Imports (Gross) ..	68,110	2,349	129,498	2,158
(26) Exports ..	11,438	394	24,531	407
(27) Imports (Net) ..	56,671	1,954	104,966	1,751
(28) Total New Supply of Products ..	486,290	16,769	965,021	16,084
(28) = (24) + (27)				
(29) Refined Products Stock Withdrawal (+) or Addition (-) ³ ..	-40,017	-1,380	-231	-4
(30) Total Petroleum Products Supplied for Domestic Use ..	446,273	15,389	964,790	16,080
(30) = (28) + (29)				
(31) Finished Motor Gasoline ..	180,870	6,237	375,170	6,253
(32) Distillate Fuel Oil ..	82,425	2,842	190,602	3,177
(33) Residual Fuel Oil ..	46,458	1,602	107,856	1,798
(34) Liquefied Petroleum Gases ..	49,525	1,708	111,302	1,855
(35) Other ⁴ ..	85,111	2,935	175,987	2,933
(36) Crude Oil ..	1,884	65	3,873	65
(37) Total Product Supplied ..	446,273	15,389	964,790	16,080
(37) = (31) through (36)				
Ending Stocks, All Oils				
(38) Crude Oil and Lease Condensate (Excluding SPR) ..	340,226	---	340,226	---
(39) Strategic Petroleum Reserve (SPR) ..	387,238	---	387,238	---
(40) Unfinished Oils ..	109,638	---	109,638	---
(41) Gasoline Blending Components ⁵ ..	41,214	---	41,214	---
(42) Pentanes Plus ..	8,302	---	8,302	---
(43) Finished Refined Products ³ ..	577,281	---	577,281	---
(44) Total Stocks ..	1,463,899	---	1,463,899	---

¹ A balancing item.² Includes products in the pentanes plus category only.³ For products included see Explanatory Note 9.7.⁴ Includes pentanes plus, other liquids, and all finished petroleum products except finished motor gasoline, distillate fuel oil, residual fuel oil and liquefied petroleum gases.⁵ Includes other hydrocarbons and alcohol.

E = Estimated.

-- Not Applicable.

Note: Total may not equal sum of components due to independent rounding.

Sources and estimation procedures: See Explanatory Notes 1, 2 and 9.7.

Table 2. Supply and Disposition of Crude Oil and Petroleum Products, February 1984
(Thousand Barrels)

Commodity	Supply				Disposition					
	Field Production	Refinery Production	Imports	Stock Withdrawal (+) or Addition (-)	Unaccounted For Crude Oil ¹	Crude Losses	Refinery Inputs	Exports	Products Supplied	Ending Stocks
Crude Oil (including lease condensate)	E 253,041	0	85,609	5,397	14,116	20	350,904	5,355	1,884	727,464
Natural Gas Liquids and LRGs	47,120	10,131	8,706	4,453	0	0	15,148	1,282	53,980	97,248
Pentanes Plus	8,250	0	1,835	219	0	0	5,769	80	4,455	8,302
Liquefied Petroleum Gases	38,870	10,131	6,871	4,234	0	0	9,379	1,202	49,525	88,946
Ethane	14,864	850	2,912	183	0	0	71	160	18,578	20,677
Propane	15,342	8,089	2,322	2,232	0	0	127	708	27,150	42,150
Normal Butane	5,817	1,200	982	2,059	0	0	5,718	254	4,086	16,196
Isobutane	2,847	-8	655	-240	0	0	3,463	80	-289	9,923
Other Liquids	1,598	0	8,087	549	0	0	16,007	0	-5,773	150,852
Other Hydrocarbons and Alcohol	1,598	0	0	-39	0	0	1,559	0	0	346
Unfinished Oils	0	0	6,374	1,176	0	0	10,687	0	-3,137	109,638
Motor Gasoline Blending Components	0	0	1,713	-538	0	0	3,812	0	-2,637	40,480
Aviation Gasoline Blending Components	0	0	0	-50	0	0	-51	0	1	388
Finished Petroleum Products	130	389,301	61,239	-44,251	0	0	0	10,237	396,182	488,335
Finished Motor Gasoline	75	183,205	8,779	-11,139	0	0	0	50	180,870	196,677
Finished Leaded Motor Gasoline	47	76,312	4,825	-4,229	0	0	0	50	76,905	96,501
Finished Unleaded Motor Gasoline	28	106,893	3,954	-6,910	0	0	0	0	103,965	100,176
Finished Aviation Gasoline	0	854	1	-207	0	0	0	0	648	2,639
Naphtha-Type Jet Fuel	0	5,588	106	171	0	0	0	63	5,802	6,149
Kerosene-Type Jet Fuel	0	27,110	3,138	-3,644	0	0	0	68	26,536	32,899
Kerosene	1	4,393	560	-1,744	0	0	0	1	3,209	9,254
Distillate Fuel Oil	40	83,018	13,292	-12,721	0	0	0	1,203	82,425	132,181
Residual Fuel Oil	0	29,073	32,089	-12,168	0	0	0	2,536	46,458	57,598
Naphtha < 400 Deg. for Petro. Feed. Use	0	4,170	1,174	-110	0	0	0	141	5,093	1,675
Other Oils > 400 Deg. for Petro. Feed. Use	0	7,623	0	-162	0	0	0	337	7,124	1,934
Special Naphthas	-50	1,837	1,681	-63	0	0	0	42	3,363	3,134
Lubricants	0	4,557	306	610	0	0	0	342	5,131	11,736
Waxes	0	428	60	28	0	0	0	23	493	657
Petroleum Coke	0	12,988	0	-689	0	0	0	5,394	6,905	6,324
Asphalt and Road Oil	0	7,023	5	-2,493	0	0	0	12	4,523	23,555
Still Gas	0	15,815	0	0	0	0	0	0	15,815	0
Miscellaneous Products	64	1,619	50	80	0	0	0	24	1,789	1,923
Total	301,889	399,432	163,641	-33,852	14,116	20	382,059	16,874	446,273	1,463,899

¹ Unaccounted for crude oil is a balancing item.

(s) = Less than 500 barrels.

E = Estimated.

Note: Total may not equal sum of components due to independent rounding.

Sources and estimation procedures. See Explanatory Notes on Data Collection and Estimation.

Table 3. Year-to-Date Supply and Disposition of Crude Oil and Petroleum Products, January - February 1984
(Thousand Barrels)

Commodity	Supply				Disposition					
	Field Production	Refinery Production	Imports	Stock Withdrawal (+) or Addition (-)	Unaccounted For Crude Oil ¹	Crude Losses	Refinery Inputs	Exports	Products Supplied	Ending Stocks
Crude Oil (including lease condensate)	E 521,460	0	179,504	-5,199	28,107	56	709,849	10,094	3,873	727,464
Natural Gas Liquids and LRGs										
Pentanes Plus	96,094	19,988	17,652	19,274	0	0	31,653	2,001	119,354	97,248
Liquefied Petroleum Gases	17,179	0	2,432	463	0	0	11,942	80	8,052	8,302
Ethane	78,915	19,988	15,221	18,811	0	0	19,711	1,921	111,302	88,946
Propane	30,146	1,418	5,869	702	0	0	118	160	37,856	20,677
Normal Butane	31,140	16,160	5,404	13,130	0	0	285	1,238	64,310	42,150
Isobutane	11,987	2,425	2,386	4,193	0	0	12,275	443	8,273	16,196
	5,642	-15	1,562	786	0	0	7,033	80	862	9,923
Other Liquids										
Other Hydrocarbons and Alcohol	2,765	0	17,957	-5,832	0	0	27,218	0	-12,328	150,852
Unfinished Oils	2,765	0	0	-61	0	0	2,704	0	0	346
Motor Gasoline Blending Components	0	0	15,459	-2,140	0	0	18,603	0	-5,284	109,638
Aviation Gasoline Blending Components	0	0	2,498	-3,560	0	0	5,983	0	-7,045	40,480
	0	0	0	-71	0	0	-72	0	1	388
Finished Petroleum Products										
Finished Motor Gasoline	302	780,964	114,277	-19,042	0	0	0	22,610	853,891	488,335
Finished Leaded Motor Gasoline	137	370,302	15,988	-11,182	0	0	0	75	375,170	196,677
Finished Unleaded Motor Gasoline	91	153,915	7,913	-2,417	0	0	0	75	159,427	96,501
Finished Aviation Gasoline	46	216,387	8,075	-8,765	0	0	0	0	215,743	100,176
Naphtha-Type Jet Fuel	0	1,425	1	-348	0	0	0	0	1,078	2,639
Kerosene-Type Jet Fuel	0	11,147	544	64	0	0	0	63	11,692	6,149
Kerosene	0	54,010	4,553	-631	0	0	0	386	57,645	32,899
Distillate Fuel Oil	4	9,998	1,096	-1,394	0	0	0	2	9,702	9,254
Residual Fuel Oil	75	163,107	21,651	8,221	0	0	0	2,451	190,602	132,181
Naphtha < 400 Deg for Petro Feed, Use	0	58,805	64,971	-8,490	0	0	0	7,231	107,856	57,598
Other Oils > 400 Deg for Petro, Feed, Use	0	7,702	2,021	37	0	0	0	335	9,426	1,675
Special Naphthas	0	14,835	0	-177	0	0	0	749	13,909	1,934
Lubricants	-50	3,367	2,109	19	0	0	0	88	5,358	3,134
Waxes	0	8,872	654	339	0	0	0	645	9,220	11,736
Petroleum Coke	0	788	87	120	0	0	0	63	932	657
Asphalt and Road Oil	0	26,553	0	-843	0	0	0	10,449	15,261	6,324
Still Gas	0	13,442	22	-4,763	0	0	0	17	8,684	23,555
Miscellaneous Products	136	4,089	580	-114	0	0	0	0	32,722	0
					0	0	0	55	4,636	1,923
Total	620,621	800,952	329,390	-10,799	28,107	56	768,720	34,705	964,790	1,463,899

¹ Unaccounted for crude oil is a balancing item

(S) = Less than 500 barrels.

E = Estimated.

Note: Total may not equal sum of components due to independent rounding.

Sources and estimation procedures: See Explanatory Notes on Data Collection and Estimation

Table 4. Daily Average Supply and Disposition of Crude Oil and Petroleum Products, February 1984
(Thousand Barrels per Day)

Commodity	Supply				Disposition				
	Field Production	Refinery Production	Imports	Stock Withdrawal (+) or Addition (-)	Unaccounted For Crude Oil ¹	Crude Losses	Refinery Inputs	Exports	Products Supplied
Crude Oil (including lease condensate)	E 8,726	0	2,952	186	487	1	12,100	185	65
Natural Gas Liquids and LRGs	1,625	349	300	154	0	0	522	44	1,861
Pentanes Plus	284	0	63	8	0	0	199	3	154
Liquefied Petroleum Gases	1,340	349	237	146	0	0	323	41	1,708
Ethane	513	29	100	6	0	0	2	6	641
Propane	529	279	80	77	0	0	4	24	936
Normal Butane	201	41	34	71	0	0	197	9	141
Isobutane	98	(s)	23	-8	0	0	119	3	-10
Other Liquids	55	0	279	19	0	0	552	0	-199
Other Hydrocarbons and Alcohol	55	0	0	-1	0	0	54	0	0
Unfinished Oils	0	0	220	41	0	0	369	0	-108
Motor Gasoline Blending Components	0	0	59	-19	0	0	131	0	-91
Aviation Gasoline Blending Components	0	0	0	-2	0	0	-2	0	(s)
Finished Petroleum Products	4	13,424	2,112	-1,526	0	0	0	353	13,661
Finished Motor Gasoline	3	6,317	303	-384	0	0	0	2	6,237
Finished Leaded Motor Gasoline	2	2,631	166	-146	0	0	0	2	2,652
Finished Unleaded Motor Gasoline	1	3,686	136	-238	0	0	0	0	3,585
Finished Aviation Gasoline	0	29	(s)	-7	0	0	0	0	22
Naphtha-Type Jet Fuel	0	193	4	6	0	0	0	2	200
Kerosene-Type Jet Fuel	0	935	108	-126	0	0	0	2	915
Kerosene	(s)	151	19	-60	0	0	0	2	111
Distillate Fuel Oil	1	2,863	458	-439	0	0	0	(s)	2,842
Residual Fuel Oil	0	1,003	1,107	-420	0	0	0	41	1,602
Naphtha < 400 Deg. for Petro. Feed Use	0	144	40	-4	0	0	0	87	176
Other Oils > 400 Deg. for Petro. Feed Use	0	263	0	-6	0	0	0	5	246
Special Naphthas	-2	63	58	-2	0	0	0	12	116
Lubricants	0	157	11	21	0	0	0	12	177
Waxes	0	15	2	1	0	0	0	1	17
Petroleum Coke	0	448	0	-24	0	0	0	186	238
Asphalt and Road Oil	0	242	(s)	-86	0	0	0	(s)	156
Still Gas	0	545	0	0	0	0	0	0	545
Miscellaneous Products	2	56	2	3	0	0	0	1	62
Total	10,410	13,774	5,643	-1,167	487	1	13,174	582	15,389

¹ Unaccounted for crude oil is a balancing item.

(s) = Less than 500 barrels.

E = Estimated.

Note: Total may not equal sum of components due to independent rounding.

Sources and estimation procedures: See Explanatory Notes on Data Collection and Estimation.

Table 5. Year-to-Date Daily Average Supply and Disposition of Crude Oil and Petroleum Products, January - February 1984
(Thousand Barrels per Day)

Commodity	Supply				Disposition				
	Field Production	Refinery Production	Imports	Stock Withdrawal (+) or Addition (-)	Unaccounted For Crude Oil ¹	Crude Losses	Refinery Inputs	Exports	Products Supplied
Crude Oil (including lease condensate)	E 8,691	0	2,992	-87	468	1	11,831	168	65
Natural Gas Liquids and LRGs	1,602	333	294	321	0	0	528	33	1,989
Pentanes Plus	286	0	41	8	0	0	199	1	134
Liquefied Petroleum Gases	1,315	333	254	314	0	0	329	32	1,855
Ethane	502	24	98	12	0	0	2	3	631
Propane	519	269	90	219	0	0	5	21	1,072
Normal Butane	200	40	40	70	0	0	205	7	138
Isobutane	94	(s)	26	13	0	0	117	1	14
Other Liquids	46	0	299	-97	0	0	454	0	-205
Other Hydrocarbons and Alcohol	46	0	0	-1	0	0	45	0	0
Unfinished Oils	0	0	258	-36	0	0	310	0	-88
Motor Gasoline Blending Components	0	0	42	-59	0	0	100	0	-117
Aviation Gasoline Blending Components	0	0	0	-1	0	0	-1	0	(s)
Finished Petroleum Products	5	13,016	1,905	-317	0	0	0	377	14,232
Finished Motor Gasoline	2	6,172	266	-186	0	0	0	1	6,253
Finished Leaded Motor Gasoline	2	2,565	132	-40	0	0	0	1	2,657
Finished Unleaded Motor Gasoline	1	3,606	135	-146	0	0	0	0	3,596
Finished Aviation Gasoline	0	24	(s)	-6	0	0	0	0	18
Naphtha-Type Jet Fuel	0	186	9	1	0	0	0	1	195
Kerosene-Type Jet Fuel	0	900	76	-9	0	0	0	6	961
Kerosene	(s)	167	18	-23	0	0	0	0	162
Distillate Fuel Oil	1	2,718	361	137	0	0	0	41	3,177
Residual Fuel Oil	0	977	1,083	-142	0	0	0	121	1,798
Naphtha < 400 Deg. for Petro. Feed, Use	0	128	34	1	0	0	0	6	157
Other Oils > 400 Deg. for Petro. Feed, Use	0	247	0	-3	0	0	0	12	232
Special Naphthas	-1	56	35	(s)	0	0	0	1	89
Lubricants	0	148	11	6	0	0	0	11	154
Waxes	0	13	1	2	0	0	0	1	16
Petroleum Coke	0	443	0	-14	0	0	0	174	254
Asphalt and Road Oil	0	224	(s)	-79	0	0	0	(s)	145
Still Gas	0	545	0	0	0	0	0	0	545
Miscellaneous Products	2	68	10	-2	0	0	0	1	77
Total	10,344	13,349	5,490	-180	468	1	12,812	578	16,080

¹ Unaccounted for crude oil is a balancing item.

(s) = Less than 500 barrels.

E = Estimated.

Note: Total may not equal sum of components due to independent rounding.

Sources and estimation procedures: See Explanatory Notes on Data Collection and Estimation

Table 6. PAD District I, Supply and Disposition of Crude Oil and Petroleum Products, February 1984
(Thousand Barrels)

Commodity	Supply				Net Receipts	Disposition				Ending Stocks
	Field Production	Refinery Production	Imports	Stock Withdrawal (+) or Addition (-)		Crude Losses	Refinery Inputs	Exports	Products Supplied	
Crude Oil (including lease condensate)	E 2,132	0	24,875	1,063	3,519	-1	30,660	0	0	14,524
Natural Gas Liquids and LRGs	930	1,245	1,683	19	0	0	115	37	6,511	3,161
Liquefied Petroleum Gases	822	1,245	490	31	0	0	83	37	5,253	3,105
Pentanes Plus	108	0	1,193	-12	0	0	32	0	1,257	56
Other Liquids	293	0	3,592	334	0	0	5,115	0	-399	17,221
Other Hydrocarbons and Alcohol	293	0	0	-26	0	0	267	0	0	107
Unfinished Oils	0	0	2,375	75	0	0	4,031	0	-1,122	12,679
Motor Gasoline Blending Components	0	0	1,217	272	0	0	805	0	722	4,435
Aviation Gasoline Blending Components	0	0	0	13	0	0	12	0	1	0
Finished Petroleum Products	64	36,533	56,839	-27,862	0	0	0	600	138,607	170,372
Finished Motor Gasoline	64	17,172	8,021	-4,066	0	0	0	0	59,514	60,791
Finished Leaded Motor Gasoline	36	6,196	4,528	-1,730	0	0	0	23	22,491	28,913
Finished Unleaded Motor Gasoline	28	10,976	3,494	-2,336	0	0	0	0	37,024	31,878
Finished Aviation Gasoline	0	12	1	4	0	0	0	0	192	498
Naphtha-Type Jet Fuel	0	429	106	33	0	0	0	0	742	770
Kerosene-Type Jet Fuel	0	706	3,133	-1,277	0	0	0	0	12,025	8,431
Kerosene	0	382	559	-1,412	0	0	0	(s)	640	4,493
Distillate Fuel Oil	0	8,935	13,094	-10,961	0	0	0	2	32,862	54,356
Residual Fuel Oil	0	4,288	30,793	-9,827	0	0	0	1	26,704	30,797
Naphtha and Other Oils for Petro. Feed	0	338	416	-191	0	0	0	64	485	330
Special Naphthas	0	22	456	131	0	0	0	5	799	622
Lubricants	0	613	244	352	0	0	0	70	1,700	3,107
Waxes	0	51	6	26	0	0	0	4	86	116
Petroleum Coke	0	1,187	0	-202	0	0	0	412	573	1,009
Asphalt and Road Oil	0	725	2	-394	0	0	0	5	516	4,639
Still Gas	0	1,527	0	0	0	0	0	0	1,527	0
Miscellaneous Products	0	146	8	-78	0	0	0	13	240	413
Total	3,419	37,778	86,989	-26,446	80,434	-1	35,890	637	144,718	205,278

¹ Unaccounted for crude oil is a balancing item

(s) = Less than 500 barrels

E = Estimated

Note: Total may not equal sum of components due to independent rounding.

Sources and estimation procedures: See Explanatory Notes on Data Collection and Estimation.

Table 7. PAD District II, Supply and Disposition of Crude Oil and Petroleum Products, February 1984
(Thousand Barrels)

Commodity	Supply					Disposition					Ending Stocks
	Field Production	Refinery Production	Imports	Stock Withdrawal (+) or Addition (-)	Unaccounted For Crude Oil	Net Receipts	Crude Losses	Refinery Inputs	Exports	Products Supplied	
Crude Oil (including lease condensate)	£ 30,366	0	14,148	-12	33,076	2,363	-7	79,528	420	0	73,571
Natural Gas Liquids and LRGs	8,890	2,137	5,331	1,038	0	3,064	0	4,874	543	15,043	30,850
Liquefied Petroleum Gases	7,602	2,137	5,331	1,226	0	2,394	0	3,497	463	14,730	27,347
Pentanes Plus	1,288	0	0	-188	0	670	0	1,377	80	313	3,303
Other Liquids	258	0	140	234	0	0	0	1,107	0	-475	25,405
Other Hydrocarbons and Alcohol	258	0	0	-2	0	0	0	256	0	0	131
Unfinished Oils	0	0	132	999	0	0	0	884	0	247	16,967
Motor Gasoline Blending Components	0	0	8	-678	0	0	0	52	0	-722	8,159
Aviation Gasoline Blending Components	0	0	0	-85	0	0	0	-85	0	0	148
Finished Petroleum Products	15	88,524	336	-7,657	0	16,720	0	0	227	97,711	128,085
Finished Motor Gasoline	0	49,060	8	-4,619	0	11,654	0	0	1	56,102	60,288
Finished Leaded Motor Gasoline	0	21,574	5	-1,568	0	6,171	0	0	1	26,182	30,824
Finished Unleaded Motor Gasoline	0	27,486	2	-3,051	0	5,483	0	0	0	29,920	29,464
Finished Aviation Gasoline	0	144	0	-89	0	134	0	0	0	189	662
Naphtha-Type Jet Fuel	0	905	0	50	0	84	0	0	0	1,039	1,423
Kerosene-Type Jet Fuel	0	4,747	0	-958	0	1,700	0	0	40	5,449	7,527
Kerosene	0	993	0	-523	0	211	0	0	0	681	2,045
Distillate Fuel Oil	0	19,098	33	97	0	2,663	0	0	4	21,887	37,049
Residual Fuel Oil	0	2,631	195	-556	0	-187	0	0	0	2,083	4,180
Naphtha and Other Oils for Petro. Feed.	0	843	19	-18	0	40	0	0	4	880	172
Special Naphthas	0	476	38	-4	0	105	0	0	18	597	504
Lubricants	0	751	10	90	0	191	0	0	12	1,030	2,097
Waxes	0	44	4	-10	0	0	0	0	(9)	38	67
Petroleum Coke	0	2,941	0	-163	0	0	0	0	140	2,638	1,205
Asphalt and Road Oil	0	2,356	3	-995	0	58	0	0	6	1,416	10,655
Still Gas	0	3,313	0	0	0	0	0	0	0	3,313	0
Miscellaneous Products	15	222	26	41	0	67	0	0	2	370	211
Total	39,529	90,661	19,955	-6,397	33,076	22,147	-7	85,509	1,190	112,279	257,711

¹ Unaccounted for crude oil is a balancing item.

(5) = Less than 500 barrels.

E = Estimated.

Note: Total may not equal sum of components due to independent rounding.

Sources and estimation procedures: See Explanatory Notes on Data Collection and Estimation.

Table 8. PAD District III, Supply and Disposition of Crude Oil and Petroleum Products, February 1984
(Thousand Barrels)

Commodity	Supply				Disposition				Ending Stocks		
	Field Production	Refinery Production	Imports	Stock Withdrawal (+) or Addition (-)	Unaccounted For Crude Oil ¹	Net Receipts	Crude Losses	Refinery Inputs		Exports	Products Supplied
Crude Oil (including lease condensate)	E 121,684	0	41,604	5,479	-11,680	10,876	6	167,935	0	22	539,436
Natural Gas Liquids and LRGs	33,719	5,589	571	3,066	0	-4,632	0	8,816	557	28,940	60,935
Liquefied Petroleum Gases	28,060	5,589	(s)	2,648	0	-4,127	0	4,725	557	26,888	56,233
Pentanes Plus	5,659	0	571	418	0	-505	0	4,091	0	2,052	4,702
Other Liquids	603	0	3,841	761	0	-239	0	9,350	0	-4,384	68,390
Other Hydrocarbons and Alcohol	603	0	0	-7	0	0	0	596	0	0	101
Unfinished Oils	0	0	3,666	744	0	-236	0	5,270	0	-1,096	51,015
Motor Gasoline Blending Components	0	0	175	22	0	-3	0	3,482	0	-3,288	17,060
Aviation Gasoline Blending Components	0	0	0	2	0	0	0	2	0	0	214
Finished Petroleum Products	45	186,939	3,109	-7,450	0	-93,527	0	0	3,848	85,268	121,337
Finished Motor Gasoline	7	83,935	466	-3,628	0	-51,797	0	0	0	28,957	48,116
Finished Leaded Motor Gasoline	7	33,469	234	-1,201	0	-20,558	0	0	25	11,926	23,298
Finished Unleaded Motor Gasoline	0	50,466	231	-2,427	0	-31,239	0	0	0	17,031	25,518
Finished Aviation Gasoline	0	488	0	-35	0	-327	0	0	0	126	836
Naphtha-Type Jet Fuel	0	2,468	0	188	0	-465	0	0	63	2,128	2,068
Kerosene-Type Jet Fuel	0	13,939	0	-264	0	-12,090	0	0	0	1,585	10,293
Kerosene	1	2,815	0	140	0	-1,322	0	0	(s)	1,634	2,475
Distillate Fuel Oil	40	41,173	5	-2,095	0	-24,400	0	0	0	348	26,781
Residual Fuel Oil	0	11,909	625	-1,101	0	-1,459	0	0	0	9,636	12,861
Naphtha and Other Oils for Petro. Feed.	0	9,807	739	-30	0	-26	0	0	399	10,092	2,548
Special Naphthas	-50	1,231	1,169	-160	0	-300	0	0	18	1,872	1,766
Lubricants	0	2,836	52	118	0	-842	0	0	221	1,943	5,023
Waxes	0	266	47	6	0	-9	0	0	15	295	422
Petroleum Coke	0	5,425	0	-460	0	0	0	0	0	2,552	1,999
Asphalt and Road Oil	0	2,383	0	-354	0	-246	0	0	2,413	1,783	4,181
Still Gas	0	7,181	0	0	0	0	0	0	(s)	0	7,181
Miscellaneous Products	47	1,083	6	225	0	-244	0	0	0	1,110	968
Total	156,051	192,528	49,124	1,856	-11,680	-87,522	6	186,101	4,405	109,845	790,098

¹ Unaccounted for crude oil is a balancing item.

(s) = Less than 500 barrels

E = Estimated.

Note: Total may not equal sum of components due to independent rounding.

Sources and estimation procedures: See Explanatory Notes on Data Collection and Estimation.

Table 9. PAD District IV, Supply and Disposition of Crude Oil and Petroleum Products, February 1984
(Thousand Barrels)

Commodity	Supply					Disposition					Ending Stocks
	Field Production	Refinery Production	Imports	Stock Withdrawal (+) or Addition (-)	Unaccounted For Crude Oil ¹	Net Receipts	Crude Losses	Refinery Inputs	Exports	Products Supplied	
Crude Oil (including lease condensate)	E 16,075	0	741	-515	-4,598	0	1	11,694	0	8	14,357
Natural Gas Liquids and LRGs	2,688	73	573	-12	0	-1,218	0	500	(s)	1,603	1,146
Liquefied Petroleum Gases	1,844	73	501	-11	0	-1,053	0	356	(s)	998	960
Pentanes Plus	844	0	72	-1	0	-165	0	144	0	606	186
Other Liquids	6	0	0	-65	0	0	0	-321	0	262	4,915
Other Hydrocarbons and Alcohol	6	0	0	0	0	0	0	6	0	0	0
Unfinished Oils	0	0	0	55	0	0	0	-300	0	355	2,463
Motor Gasoline Blending Components	0	0	0	-120	0	0	0	-27	0	-93	2,452
Aviation Gasoline Blending Components	0	0	0	0	0	0	0	0	0	0	0
Finished Petroleum Products	6	12,017	154	-490	0	292	0	0	3	11,976	13,227
Finished Motor Gasoline	4	6,203	37	-165	0	-13	0	0	0	6,066	6,285
Finished Leaded Motor Gasoline	4	3,554	36	5	0	-145	0	0	0	3,454	3,908
Finished Unleaded Motor Gasoline	0	2,649	1	-170	0	132	0	0	0	2,612	2,377
Finished Aviation Gasoline	0	24	0	-13	0	18	0	0	0	29	57
Naphtha-Type Jet Fuel	0	375	0	-55	0	-155	0	0	0	165	309
Kerosene-Type Jet Fuel	0	664	0	-198	0	715	0	0	0	1,181	660
Kerosene	0	33	0	19	0	0	0	0	0	52	22
Distillate Fuel Oil	0	3,124	92	193	0	-273	0	0	0	3,136	3,225
Residual Fuel Oil	0	301	23	11	0	0	0	0	0	335	401
Naphtha and Other Oils for Petro. Feed	0	0	0	1	0	0	0	0	1	(s)	2
Special Naphthas	0	4	1	-3	0	0	0	0	(s)	2	9
Lubricants	0	26	(s)	145	0	0	0	0	1	170	84
Waxes	0	9	0	0	0	0	0	0	0	9	0
Petroleum Coke	0	275	0	-7	0	0	0	0	(s)	268	138
Asphalt and Road Oil	0	513	0	-419	0	0	0	0	(s)	94	2,029
Still Gas	0	436	0	0	0	0	0	0	0	436	0
Miscellaneous Products	2	30	(s)	1	0	0	0	0	0	33	6
Total	18,775	12,090	1,467	-1,082	-4,598	-926	1	11,873	3	13,849	33,645

¹ Unaccounted for crude oil is a balancing item

(s) = Less than 500 barrels

E = Estimated.

Note: Total may not equal sum of components due to independent rounding.
Sources and estimation procedures: See Explanatory Notes on Data Collection and Estimation.

Table 10. PAD District V, Supply and Disposition of Crude Oil and Petroleum Products, February 1984
(Thousand Barrels)

Commodity	Supply					Disposition					Ending Stocks
	Field Production	Refinery Production	Imports	Stock Withdrawal (+) or Addition (-)	Unaccounted For Crude Oil ¹	Net Receipts	Crude Losses	Refinery Inputs	Exports	Products Supplied	
Crude Oil (including lease condensate)	E 82,784	0	4,242	-618	-1,753	-16,758	21	61,087	4,935	1,854	85,576
Natural Gas Liquids and LRGs	893	1,087	550	342	0	0	0	843	145	1,884	1,356
Liquefied Petroleum Gases	542	1,087	550	340	0	0	0	718	145	1,656	1,301
Pentanes Plus	351	0	0	2	0	0	0	125	0	228	55
Other Liquids	438	0	514	-715	0	-258	0	756	0	-777	34,921
Other Hydrocarbons and Alcohol	438	0	0	-4	0	0	0	434	0	0	7
Unfinished Oils	0	0	201	-697	0	-223	0	802	0	-1,521	26,514
Motor Gasoline Blending Components	0	0	313	-34	0	-35	0	-500	0	744	8,374
Aviation Gasoline Blending Components	0	0	0	20	0	0	0	20	0	0	26
Finished Petroleum Products	0	65,288	800	-792	0	2,883	0	0	5,559	62,620	55,314
Finished Motor Gasoline	0	26,835	247	1,339	0	1,810	0	0	1	30,230	20,197
Finished Leaded Motor Gasoline	0	11,519	22	265	0	1,048	0	0	1	12,853	9,558
Finished Unleaded Motor Gasoline	0	15,316	225	1,074	0	762	0	0	0	17,377	10,639
Finished Aviation Gasoline	0	186	0	-74	0	0	0	0	0	112	586
Naphtha-Type Jet Fuel	0	1,411	0	-45	0	362	0	0	0	1,728	1,579
Kerosene-Type Jet Fuel	0	7,054	4	-947	0	212	0	0	28	6,295	5,988
Kerosene	0	170	(s)	32	0	0	0	0	0	202	219
Distillate Fuel Oil	0	10,688	68	45	0	213	0	0	849	10,166	10,770
Residual Fuel Oil	0	9,944	452	-695	0	196	0	0	2,197	7,700	9,359
Naphtha and Other Oils for Petro. Feed	0	805	0	-34	0	0	0	0	10	761	557
Special Naphthas	0	104	16	-27	0	0	0	0	(s)	93	233
Lubricants	0	331	(s)	-95	0	90	0	0	37	289	1,425
Waxes	0	58	3	6	0	0	0	0	5	62	52
Petroleum Coke	0	3,160	0	143	0	0	0	0	2,428	875	1,973
Asphalt and Road Oil	0	1,046	0	-331	0	0	0	0	1	714	2,051
Still Gas	0	3,358	0	0	0	0	0	0	0	3,358	0
Miscellaneous Products	0	138	9	-109	0	0	0	0	3	36	325
Total	84,115	66,375	6,106	-1,783	-1,753	-14,133	21	62,686	10,639	65,582	177,167

¹ Unaccounted for crude oil is a balancing item.

(s) = Less than 500 barrels.

E = Estimated

Note. Total may not equal sum of components due to independent rounding.

Sources and estimation procedures: See Explanatory Notes on Data Collection and Estimation.

Table 11. Production of Crude Oil (including Lease Condensate) by PAD District and State, for the Most Currently Available Month,¹ December 1983
(Thousand Barrels)

PAD District and State		Production		PAD District and State		Production	
		Total	Daily Average			Total	Daily Average
PAD District I							
Florida		1,271	41	PAD District IV			
New York		E 71	E 2	Colorado		2,343	76
Pennsylvania		E 364	E 12	Montana		2,351	76
Virginia		E 4	E 0	Utah		E 2,446	E 79
West Virginia		261	8	Wyoming		E 9,607	E 310
Adjustment 2		320	10	Adjustment 2		9	(s)
Total PAD District I		E 2,291	E 74	Total PAD District IV		E 16,756	E 541
PAD District II							
Illinois		2,113	68	PAD District V			
Indiana		348	11	Alaska			
Kansas		5,630	182	South Alaska		2,021	65
Kentucky		588	19	North Slope		51,032	1,646
Michigan		2,579	83	Adjustment for Alaska ²		35	1
Missouri		E 17	E 1	Total Alaska		53,088	1,713
Nebraska		480	15	Arizona		19	1
North Dakota		4,153	134	California			
Ohio		E 1,238	E 40	Central Coastal		6,509	210
Oklahoma		11,258	363	East Central		21,212	684
South Dakota		96	3	North		15	(s)
Tennessee		67	2	South		6,804	213
Adjustment 2		3,766	121	Total California		34,340	1,108
Total PAD District II		E 32,333	E 1,043	Nevada		111	4
PAD District III							
Alabama		1,497	48	Adjustment for Arizona, California, and Nevada ²		58	2
Arkansas		E 1,601	E 52	Total PAD District V		87,616	2,826
Louisiana				United States Total		E 266,980	E 8,612
Gulf Coast		E 39,095	E 1,261	¹ Includes the following offshore production (thousand barrels):			
Rest of State		E 2,590	84	Alaska: State - 1,773;			
Total Louisiana		E 41,685	E 1,345	California: Federal - 2,628, State - 3,160,			
Mississippi		2,714	88	Louisiana: Federal - E27,042, State - 2,046;			
New Mexico				Texas: Federal - E1,592, State- 176;			
Northwestern		620	20	U.S. Total - E38,417.			
Southeastern		5,469	176	² These adjustments are used to reconcile the national and PADD			
Total New Mexico		6,089	196	level sums of the State data with the independently estimated			
Texas				U.S. and Alaskan figures shown in the Summary Statistics portion			
TRRC District 01		2,018	65	of this issue and with the PADD level figures published in a			
TRRC District 02		3,217	104	previous issue. Final data at the State, PAD District and			
TRRC District 03		E 9,914	E 320	national levels will be published without adjustments in the			
TRRC District 04		2,201	71	Petroleum Supply Annual.			
TRRC District 05		700	23	(s) = Less than 500 barrels.			
TRRC District 06, excluding East Texas		3,321	107	Note. Total may not equal sum of components due to independent rounding.			
TRRC District 07B		2,648	85	Source: See Explanatory Notes on Data Collection and Estimation.			
TRRC District 07C		2,778	90	- Data not available.			
TRRC District 08		17,946	579	E = Estimated.			
TRRC District 08A		18,171	586				
TRRC District 09		3,023	98				
TRRC District 10		1,677	54				
East Texas		4,189	135				
Total Texas		71,803	2,316				
Adjustment 2		2,595	84				
Total PAD District III		E 127,984	E 4,129				

Table 12. Natural Gas Processing Plant Production of Petroleum Products by PAD District,¹ February 1984
(Thousand Barrels)

Commodity	PAD District I			PAD District II				PAD District III					PAD District IV		United States		
	East Coast	Appalachian #1	Total	Appalachian #2	Ind., Ill., Ky.	Minn., Wisc., Dak.	Okla., Kans., Mo.	Total	Texas		La. Gulf Coast	No. La. Ark.	New Mexico	Total		Rocky Mt.	Dist. V West Coast
									Inland	Gulf Coast							
Natural Gas Liquids	388	542	930	1	1,896	472	6,581	8,890	18,765	2,546	7,561	687	4,160	33,719	2,688	893	47,120
Pentanes Plus	45	63	108	0	247	113	928	1,288	3,154	256	1,391	185	673	5,659	844	351	8,250
Liquefied Petroleum Gases	343	479	822	1	1,589	359	5,653	7,602	15,611	2,290	6,170	502	3,487	26,060	1,844	542	38,870
Ethane	104	152	256	0	689	4	2,349	3,042	6,342	1,042	2,784	81	1,098	11,347	217	2	14,864
Propane	151	221	372	1	565	212	2,183	2,961	5,896	962	2,078	214	1,436	10,586	1,084	339	15,342
Normal Butane	69	76	145	0	181	118	814	1,113	2,378	145	681	134	642	3,980	437	142	5,817
Isobutane	19	30	49	0	154	25	307	486	995	141	627	73	311	2,147	106	59	2,847
Finished Petroleum Products	64	0	64	0	2	0	13	15	-19	43	3	17	1	45	6	0	130
Finished Motor Gasoline	64	0	64	0	0	0	0	0	7	0	0	0	0	7	4	0	75
Finished Leaded Motor Gasoline	36	0	36	0	0	0	0	0	7	0	0	0	0	7	4	0	47
Finished Unleaded Motor Gasoline	28	0	28	0	0	0	0	0	0	0	0	0	0	0	0	0	28
Finished Aviation Gasoline	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Naphtha-Type Jet Fuel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Kerosene-Type Jet Fuel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Kerosene	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	1
Distillate Fuel Oil	0	0	0	0	0	0	0	0	1	39	0	0	0	40	0	0	40
Special Naphthas	0	0	0	0	0	0	0	0	-50	0	0	0	0	-50	0	0	-50
Miscellaneous Products	0	0	0	0	2	0	13	15	22	4	3	17	1	47	2	0	64
Total Production	452	542	994	1	1,838	472	6,594	8,905	18,746	2,589	7,564	704	4,161	33,764	2,694	893	47,250

¹ Production represents quantity of natural gas processing plant output less input to fractionating facilities.
Source: See Explanatory Notes on Data Collection and Estimation.

Table 13. Refinery Input of Crude Oil and Petroleum Products by PAD District, February 1984
(Thousand Barrels, Except Where Noted)

Commodity	PAD District I			PAD District II					PAD District III				PAD District IV		United States		
	East Coast	Appalachian #1	Total	Appalachian #2	Ind., Ill., Ky.	Minn., Wisc., Daks.	Okla., Kans., Mo.	Total	Texas Inland	Texas Gulf Coast	La., Gulf Coast	No. La., Ark.	New Mexico	Total		Rocky Mt.	Dist. V West Coast
Crude Oil (including lease condensate)	28,615	2,045	30,660	1,620	53,697	8,069	16,142	79,528	14,932	85,060	60,311	5,307	2,325	167,935	11,694	61,087	350,904
Pentanes Plus	32	0	32	0	573	48	756	1,377	861	2,390	582	194	64	4,091	144	125	5,769
Liquefied Petroleum Gases	25	58	83	170	2,367	202	758	3,497	568	1,634	2,282	171	70	4,725	356	718	9,379
Ethane	0	0	0	0	0	0	0	0	0	0	71	0	0	71	0	0	71
Propane	0	0	0	0	74	0	0	74	0	3	37	0	0	40	5	8	127
Normal Butane	0	58	58	86	1,506	175	319	2,086	283	1,176	1,209	73	44	2,785	299	490	5,718
Isobutane	25	0	25	84	787	27	439	1,337	285	455	965	98	26	1,829	52	220	3,463
Other Liquids																	
Other Hydrocarbons and Alcohol	267	0	267	0	256	0	0	256	0	318	273	0	5	596	6	434	1,559
Unfinished Oil (net)	4,053	-22	4,031	21	116	-70	817	884	-114	4,402	709	132	141	5,270	-300	802	10,687
Motor Gasoline Blending																	
Components (net)	792	13	805	-5	195	-63	-75	52	121	1,279	2,099	-7	-10	3,482	-27	-500	3,812
Aviation Gasoline Blending																	
Components (net)	12	0	12	0	-83	0	-2	-85	0	10	-8	0	0	2	0	20	-51
Total Input to Refineries	33,796	2,094	35,890	1,806	57,121	8,186	18,396	85,509	16,368	95,093	66,248	5,797	2,595	186,101	11,873	62,686	382,059
Crude Oil Distillation																	
Gross Input (daily average)	1,010	71	1,081	56	1,866	281	574	2,777	522	3,016	2,095	185	81	5,899	406	2,112	12,276
Operable Capacity (daily average)	1,405	174	1,579	66	2,318	295	791	3,470	615	3,867	2,539	292	107	7,420	555	3,114	16,139
Operating Ratio (percent) ¹	71.9	40.4	68.4	84.6	80.5	95.3	72.5	80.0	84.9	78.0	82.5	63.3	75.7	79.5	73.2	67.8	76.1
Crude Oil Qualities																	
Sulfur Content, Weighted Average (percent) .....	.97	.39	.92	.55	.82	1.67	.58	.85	.60	1.09	1.00	1.35	.73	1.02	.92	1.04	.97
API Gravity, Weighted Average	31.27	41.01	32.03	36.96	35.77	30.90	37.93	35.74	37.97	34.61	33.08	33.94	39.33	34.41	36.11	26.06	33.10
Operable Capacity (daily average)	1,405	174	1,579	66	2,318	295	791	3,470	615	3,867	2,539	292	107	7,420	555	3,114	16,139
Operating	1,197	94	1,291	66	2,110	295	714	3,185	575	3,538	2,363	204	107	6,786	479	2,762	14,503
Idle	208	80	289	0	208	0	77	285	41	328	176	88	0	633	76	353	1,636

¹ Represents gross input divided by operable capacity.

Note: Total may not equal sum of components due to independent rounding.
Source: See Explanatory Notes on Data Collection and Estimation.

Table 14. Refinery Production of Petroleum Products by PAD District, February 1984
(Thousand Barrels)

Commodity	PAD District I			PAD District II					PAD District III				PAD District IV		United States	
	East Coast	Appalachian #1	Total	Appalachian #2	Ind., Ill., Ky.	Minn., Wisc., Dak.	Okl., Kans., Mo.	Total	Texas Inland	Texas Gulf Coast	La. Gulf Coast	No. La., Ark.	New Mexico	Total		Rocky Mt.	Dist. V West Coast
Liquefied Refinery Gases	1,224	21	1,245	37	1,670	199	231	2,137	204	2,650	2,561	76	98	5,589	73	1,087
For Petrochemical Feedstock Use	459	0	459	0	174	-15	40	199	52	1,479	1,615	6	0	3,152	6	211
For Other Uses	765	21	786	37	1,496	214	191	1,938	152	1,171	946	70	98	2,437	67	876
Ethane	12	0	12	0	0	0	0	0	0	824	13	0	1	838	0	850
For Petrochemical Feedstock Use	0	0	0	0	0	0	0	0	0	432	0	0	0	432	0	432
For Other Uses	12	0	12	0	0	0	0	0	0	392	13	0	1	406	0	418
Propane	1,033	21	1,054	37	1,651	214	437	2,339	202	2,264	1,137	56	61	3,720	135	841
For Petrochemical Feedstock Use	378	0	378	0	170	0	40	210	52	1,087	104	0	0	1,243	0	150
For Other Uses	655	21	676	37	1,481	214	397	2,129	150	1,177	1,033	56	61	2,477	135	691
Normal Butane	179	0	179	0	15	-15	-206	-206	2	-417	1,411	20	36	1,052	-68	243
For Petrochemical Feedstock Use	81	0	81	0	0	-15	0	-15	0	-19	1,511	6	0	1,498	0	58
For Other Uses	98	0	98	0	15	0	-206	-191	2	-398	-100	14	36	-446	-68	185
Isobutane for Petro. Feed. Use	0	0	0	0	4	0	0	4	0	-21	0	0	0	-21	6	3
Finished Motor Gasoline	16,297	875	17,172	1,056	31,944	4,660	11,400	49,060	8,319	42,089	30,506	2,003	1,018	83,935	6,203	26,835
Finished Leaded Motor Gasoline	5,806	390	6,196	488	12,501	2,397	6,188	21,574	4,127	15,697	12,150	966	529	33,469	3,554	11,519
Finished Unleaded Motor Gasoline	10,491	485	10,976	568	19,443	2,263	5,212	27,486	4,192	26,392	18,356	1,037	489	50,466	2,649	15,316
Finished Aviation Gasoline	12	0	12	0	135	0	9	144	115	294	79	0	0	488	24	186
Naphtha-Type Jet Fuel	403	26	429	62	406	96	341	905	729	729	390	149	471	2,468	375	1,411
Kerosene-Type Jet Fuel	706	0	706	12	3,682	447	606	4,747	950	5,390	7,539	5	55	13,939	664	7,054
Kerosene	335	47	382	89	813	55	36	993	60	1,421	1,156	101	77	2,815	33	170
Distillate Fuel Oil	8,383	552	8,935	379	11,503	2,089	5,127	19,098	3,507	21,416	13,978	1,571	701	41,173	3,124	10,688
Residual Fuel Oil	4,146	142	4,288	66	1,928	249	388	2,631	656	7,914	3,034	293	12	11,909	301	9,944
Naphtha < 400 Deg. For Petro. Feed. Use	333	0	333	0	649	0	71	720	518	2,186	145	40	0	2,889	0	228
Other Oils > 400 Deg. For Petro. Feed. Use	5	17	22	0	269	0	207	476	35	1,010	71	115	0	6,918	0	577
Special Naphthas	364	249	613	0	373	0	378	751	49	1,642	775	370	0	2,836	26	331
Lubricants	10	41	51	0	14	0	30	44	4	119	83	60	0	266	9	58
Petroleum Coke	1,171	16	1,187	25	1,883	502	531	2,941	265	2,560	2,473	117	10	5,425	275	3,160
Marketable	452	0	452	0	972	386	356	1,714	59	1,314	1,850	101	0	3,324	147	2,390
Catalyst	719	16	735	25	911	116	175	1,227	206	1,246	623	16	10	2,101	128	770
Asphalt and Road Oil	713	12	725	79	1,487	245	545	2,356	427	471	638	754	93	2,383	513	1,046
Still Gas	1,453	74	1,527	51	2,210	315	737	3,313	410	4,142	2,391	192	46	7,181	436	3,358
For Petrochemical Feedstock Use	158	0	158	0	4	0	0	4	5	502	104	0	0	611	32	96
For Other Uses	1,295	74	1,369	51	2,206	315	737	3,309	405	3,640	2,287	192	46	6,570	404	3,262
Miscellaneous Products	89	57	146	2	151	29	40	222	27	758	257	41	0	1,083	30	138
Fuel Use	-16	22	6	0	1	0	5	6	0	25	195	195	0	220	3	11
Non-Fuel Use	105	35	140	2	150	29	35	216	27	733	62	41	0	863	27	127
Total Production	35,649	2,129	37,778	1,858	59,240	8,866	20,677	90,661	16,390	99,047	68,623	5,887	2,581	192,528	12,090	66,375
Processing Gain(-) or Loss(+)	-1,853	-35	-1,888	-52	-2,119	-700	-2,281	-5,152	-22	-3,954	-2,375	-90	14	-6,427	-217	-3,689

¹ Represents the arithmetic difference between input and output.

Note: See Explanatory Note 2.

Source: See Explanatory Notes on Data Collection and Estimation.

Table 15. Percent Refinery Yield of Petroleum Products by PAD District, February 1984

Commodity	PAD District I			PAD District II				PAD District III				PAD District IV		United States		
	East Coast	Appalachian #1	Total	Appalachian #2	Ind., Ill., Ky.	Minn., Wisc., Dak.	Okla., Kans., Mo.	Texas Inland	Texas Gulf Coast	La., Gulf Coast	No. La., Ark.	New Mexico	Total		Rocky Mt.	Dist. V West Coast
Finished Motor Gasoline ²	46.5	39.7	46.1	54.3	53.1	55.9	58.7	45.7	40.8	41.4	30.2	36.1	41.0	50.2	42.1	45.0
Finished Aviation Gasoline ³ .....	.0	.0	.0	.0	.4	.0	.1	.8	.3	.1	.0	.0	.3	.2	.3	3
Liquefied Refinery Gases	3.7	1.0	3.6	2.3	3.1	2.5	1.4	1.4	3.0	4.2	1.4	4.0	3.2	.6	1.8	2.8
Naphtha-Type Jet Fuel	1.2	1.3	1.2	3.8	8	1.2	2.0	4.9	.8	.6	2.7	19.1	1.4	3.3	2.3	1.5
Kerosene-Type Jet Fuel	2.2	0	2.0	.7	6.8	5.6	3.6	6.4	6.0	12.4	1	2.2	8.0	5.8	11.4	7.5
Kerosene	1.0	2.3	1.1	5.4	1.5	7	.2	.4	1.6	1.9	1.9	3.1	1.6	.3	.3	1.2
Distillate Fuel Oil	25.7	27.3	25.8	23.1	21.4	26.1	30.2	23.7	23.9	22.9	28.9	28.4	23.8	27.4	17.3	23.0
Residual Fuel Oil	12.7	7.0	12.4	4.0	3.6	3.1	2.3	4.4	8.8	5.0	5.4	5	6.9	2.6	16.1	8.0
Naphtha < 400 Deg F. Petro. Feed. Use	1.0	0	1.0	0	1.2	0	.4	.9	3.5	2.4	.7	0	1.7	0	.4	1.2
Other Oils > 400 Deg. F Petro Feed. Use .....	.0	0	0	0	.2	0	0	.2	.8	4.8	4.2	0	4.0	.0	.9	2.1
Special Naphthas .....	.8	0	.1	0	.5	0	1.2	.6	2	1.1	1	2.1	0	.7	.0	5
Lubricants	1.1	12.3	1.8	0	.7	0	2.2	.9	3	1.8	6.8	0	1.6	.2	5	1.3
Waxes .....	.0	2.0	.1	0	.0	0	.2	.1	.1	.1	1.1	0	.2	.1	1	1
Petroleum Coke	3.6	.8	3.4	1.5	3.5	6.3	3.1	1.8	2.9	4.1	2.2	4	3.1	2.4	5.1	3.6
Asphalt and Road Oil	2.2	.6	2.1	4.8	2.8	3.1	3.2	2.9	5	1.0	13.9	3.8	1.4	4.5	1.7	1.9
Still Gas	4.4	3.7	4.4	3.1	4.1	3.9	4.3	2.8	4.6	3.9	3.5	1.9	4.1	3.8	5.4	4.4
Miscellaneous Products .....	.3	2.8	4	.1	.3	4	.2	.2	8	4	.8	0	6	.3	.2	.4
Processing Gain(-) or Loss(+) ⁴	-5.7	-1.7	-5.4	-3.2	-3.9	-8.8	-13.5	-1	-4.4	-3.9	-1.7	6	-3.7	-1.9	-6.0	-4.8

¹ Based on crude oil input and net returns of unfinished oils.² Based on total finished motor gasoline output plus net output of motor gasoline blending components, minus input of natural gas plant liquids, other hydrocarbons and alcohol.³ Based on finished aviation gasoline output plus net output of aviation gasoline blending components.⁴ Represents the difference between Input and Production.

Note: Total may not equal sum of components due to independent rounding.

Note: See Explanatory 2.

Source: See Explanatory Notes on Data Collection and Estimation.

Table 16. Imports of Crude Oil and Petroleum Products by PAD District, February 1984
(Thousand Barrels)

Commodity	Petroleum Administration for Defense Districts					
	I	II	III	IV	V	Total
Crude Oil (including lease condensate) ^{1 2}	24,875	14,148	41,504	741	4,242	85,609
Natural Gas Liquids						
Pentanes Plus	1,883	5,331	571	573	550	8,706
Liquefied Petroleum Gases	1,193	0	571	72	0	1,835
Ethane	490	5,331	(s)	501	550	6,871
Propane	0	2,912	0	0	0	2,912
Normal Butane	434	1,541	(s)	237	110	2,322
Isobutane	33	527	0	159	264	982
	22	351	0	106	176	655
Other Liquids ¹	3,592	140	3,841	0	514	8,087
Unfinished Oils ¹	2,375	132	3,666	0	201	6,374
Motor Gasoline Blending Components	1,217	8	175	0	313	1,713
Aviation Gasoline Blending Components	0	0	0	0	0	0
Finished Petroleum Products	56,839	336	3,109	154	800	61,239
Finished Motor Gasoline	8,021	8	466	37	247	8,779
Finished Leaded Motor Gasoline	4,528	5	234	36	22	4,825
Finished Unleaded Motor Gasoline	3,494	2	231	1	225	3,954
Finished Aviation Gasoline	1	0	0	0	0	1
Naphtha-Type Jet Fuel	106	0	0	0	0	106
Kerosene-Type Jet Fuel	3,133	0	0	0	4	3,138
Bonded Aircraft Fuel	0	0	0	0	0	0
Other	3,133	0	0	0	4	3,138
Kerosene	559	0	0	0	(s)	560
Distillate Fuel Oil	13,094	33	5	92	68	13,292
Bonded Ships Bunkers	0	0	0	0	0	0
Other	13,094	33	5	92	68	13,292
Residual Fuel Oil	30,793	195	625	23	452	32,089
Bonded Ships Bunkers	0	0	0	0	0	0
Other	30,793	195	625	23	452	32,089
Naphtha < 400 Deg. for Petro Feed Use	416	19	739	0	0	1,174
Other Oils > 400 Deg. for Petro. Feed. Use	0	0	0	0	0	0
Special Naphthas	456	38	1,169	1	16	1,681
Lubricants	244	10	52	(s)	(s)	306
Waxes	6	4	47	0	3	60
Asphalt and Road Oil	2	3	0	0	0	5
Miscellaneous Products	8	26	6	(s)	9	50
Total Imports	86,989	19,955	49,124	1,467	6,106	163,641

¹ Crude oil and unfinished oils are reported by the PAD District in which they are to be processed; all other products are reported by the PAD District of entry.

² Includes crude oil imported for storage in the Strategic Petroleum Reserve.

(s) = Less than 500 barrels

Note: Total may not equal sum of components due to independent rounding.

Source: See Explanatory Notes on Data Collection and Estimation.

Table 17. Imports of Crude Oil and Petroleum Products by Source and PAD District, February 1984
(Thousand Barrels)

Source	Crude Oil 1	LPG	Unfin- ished Oils	Gasoline Blending Compo- nents	Finished Motor Gasoline	Jet Fuel	Kero- sene	Distil. Fuel Oil	Resid. Fuel Oil	Special Naphthas	Other Prod- ucts 2	Total Prod- ucts	Total Petro- leum	Total (Daily Average)
All PAD Districts														
Arab OPEC														
Algeria	6,053	0	0	0	283	282	0	681	1,374	848	571	4,038	10,091	348
Iraq	1	0	0	0	0	0	0	0	0	0	0	0	1	(s)
Kuwait	1	0	0	0	0	0	0	0	524	0	0	524	525	18
Saudi Arabia	9,240	163	0	0	0	0	0	0	0	0	0	163	9,403	324
United Arab Emirates	519	0	0	0	0	0	0	0	434	0	0	434	953	33
Subtotal Arab OPEC	15,814	163	0	0	283	282	0	681	2,332	848	571	5,159	20,973	723
Other OPEC														
Ecuador	3,234	0	0	0	0	0	0	0	118	0	0	118	3,352	116
Gabon	871	0	0	0	0	0	0	0	246	60	0	306	1,177	41
Indonesia	7,293	0	0	0	138	0	0	61	244	0	0	442	7,735	267
Nigeria	6,925	0	0	0	0	0	0	53	90	0	0	143	7,068	244
Venezuela	6,122	0	221	175	891	128	0	1,413	5,008	0	(s)	7,836	13,958	481
Subtotal Other OPEC	24,445	0	221	175	1,028	128	0	1,527	5,706	60	(s)	8,846	33,290	1,148
Other														
Angola	1,472	0	0	0	0	0	0	0	268	0	0	268	1,740	60
Australia	666	0	0	0	0	0	0	0	0	0	51	51	717	25
Bahamas	0	0	1,332	0	0	122	69	729	1,305	0	570	4,126	4,126	142
Brazil	0	0	0	0	705	0	0	0	279	50	0	1,034	1,034	36
Brunei	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Canada	8,608	5,612	139	8	285	0	6	1,228	711	66	315	8,714	17,977	620
Congo	0	0	0	0	0	0	0	0	190	0	0	190	190	7
France	0	0	0	0	0	0	0	0	198	0	9	9	9	(s)
Liberia	0	0	0	0	0	0	0	0	0	0	0	198	198	7
Malaysia	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mexico	18,997	5	1,481	305	(s)	184	0	387	307	0	8	2,677	21,674	747
Netherlands	549	(s)	0	0	1,168	196	0	4,345	748	36	66	6,559	7,108	245
Netherlands Antilles	0	0	1,667	0	680	150	0	0	5,838	0	4	8,339	8,339	288
Norway	1,699	(s)	0	0	0	0	0	130	0	0	0	130	1,829	63
Oman	496	0	0	0	0	0	0	0	585	0	0	585	1,081	37
People's Republic of China	14	0	201	313	0	0	0	0	0	0	0	514	529	18
Peru	0	0	0	0	0	0	0	0	906	0	0	906	906	31
Puerto Rico	0	0	412	0	251	0	0	208	0	594	231	1,696	1,696	58
Romania	0	0	0	913	243	0	0	0	0	0	1,055	2,211	2,211	76
Spain	0	0	0	0	204	825	0	123	409	0	0	1,562	1,562	54
Trinidad and Tobago	1,647	0	0	0	0	0	0	0	585	0	0	585	2,232	77
United Kingdom	8,040	91	255	0	395	154	0	163	526	0	187	1,771	9,811	338
Virgin Islands	0	0	288	0	1,987	572	425	2,523	6,240	0	75	12,110	12,110	418
Zaire	395	0	0	0	0	0	0	0	0	0	0	0	395	14
Other Western Hemisphere	140	0	196	0	0	0	0	32	2,034	11	40	2,312	2,452	85
Other Eastern Hemisphere	2,627	(s)	182	0	1,548	631	60	1,217	2,922	15	251	6,825	9,453	326
Subtotal Other	45,351	6,707	6,153	1,538	7,468	2,834	560	11,083	24,051	772	2,860	63,372	109,377	3,772
Total Imports	85,609	6,871	6,374	1,713	8,779	3,244	560	13,292	32,089	1,681	3,431	77,376	163,641	5,643

See footnotes at end of table.

Table 17. Imports of Crude Oil and Petroleum Products by Source and PAD District, February 1984
(Thousand Barrels) (continued)

Source	Crude Oil 1	LPG	Unfin- ished Oils	Gasoline Blending Compo- nents	Finished Motor Gasoline	Jet Fuel	Kero- sene	Distil Fuel Oil	Resid. Fuel Oil	Special Naphthas	Other Prod- ucts 2	Total Prod- ucts	Total Petro- leum	Total (Daily Average)
PAD District I														
Arab OPEC														
Algeria	1,719	0	0	0	283	282	0	681	1,374	0	0	2,820	4,339	150
Kuwait	1	0	0	0	0	0	0	0	0	0	0	0	1	(s)
Saudi Arabia	2,827	163	0	0	0	0	0	0	0	0	0	163	2,790	96
United Arab Emirates	0	0	0	0	0	0	0	0	434	0	0	0	434	15
Subtotal Arab OPEC	4,348	163	0	0	283	282	0	681	1,808	0	0	3,217	7,564	261
Other OPEC														
Ecuador	0	0	0	0	0	0	0	0	118	0	0	118	118	4
Gabon	0	0	0	0	0	0	0	0	246	60	0	306	306	11
Indonesia	4,048	0	0	0	0	0	0	0	0	0	0	0	4,048	140
Nigeria	2,383	0	0	0	0	0	0	50	90	0	0	140	2,524	87
Venezuela	1,561	0	0	0	659	128	0	1,413	5,008	0	(s)	7,209	8,769	302
Subtotal Other OPEC	7,992	0	0	0	659	128	0	1,464	5,462	60	(s)	7,773	15,766	544
Other														
Angola	917	0	0	0	0	0	0	0	268	0	0	268	1,184	41
Australia	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bahamas	0	0	0	0	0	122	69	729	1,305	0	180	2,404	2,404	83
Brazil	0	0	0	0	471	0	0	0	279	0	0	750	750	26
Canada	870	235	7	0	240	0	6	1,103	492	11	172	2,244	3,136	108
Congo	0	0	0	0	0	0	0	0	190	0	0	190	190	7
France	0	0	0	0	0	0	0	0	0	0	(s)	(s)	(s)	(s)
Liberia	0	0	0	0	0	0	0	0	198	0	0	198	198	7
Mexico	2,092	0	0	305	1,168	184	0	384	300	0	0	1,172	3,265	113
Netherlands	0	(s)	0	0	0	196	0	4,345	748	0	0	6,458	6,458	223
Netherlands Antilles	0	0	1,408	0	680	150	0	0	5,838	0	4	8,080	8,080	279
Norway	1,699	0	0	0	0	0	0	130	0	0	0	130	1,829	63
Oman	496	0	0	0	0	0	0	0	585	0	0	585	1,081	37
People's Republic of China	14	0	0	0	0	0	0	0	0	0	0	0	14	(s)
Peru	0	0	412	0	251	0	0	208	805	0	0	805	805	28
Puerto Rico	0	0	0	0	243	0	0	0	1,472	370	231	1,472	1,472	51
Romania	0	0	0	913	204	825	0	123	2,211	0	1,055	2,211	2,211	76
Spain	0	0	0	0	0	0	0	0	409	0	0	1,562	1,562	54
Trinidad and Tobago	451	0	0	0	0	0	0	0	585	0	0	585	1,036	36
United Kingdom	4,157	91	255	0	395	154	0	163	526	0	(s)	1,584	5,741	198
Virgin Islands	0	0	288	0	1,987	572	425	2,523	6,240	0	0	12,035	12,035	415
Zaire	395	0	0	0	0	0	0	0	0	0	0	0	395	14
Other Western Hemisphere														
Hemisphere	0	0	0	0	0	0	0	32	2,034	0	(s)	2,066	2,066	71
Other Eastern Hemisphere	1,444	(s)	4	0	1,439	627	60	1,210	2,721	15	228	6,305	7,748	267
Subtotal Other	12,535	326	2,375	1,217	7,079	2,829	559	10,949	23,524	396	1,869	51,101	63,659	2,195
Total Imports	24,875	490	2,375	1,217	8,021	3,239	559	13,094	30,793	456	1,869	62,091	86,989	3,000
PAD District II														
Arab OPEC														
Algeria	1,209	0	0	0	0	0	0	0	0	0	0	0	1,209	42
Saudi Arabia	423	0	0	0	0	0	0	0	0	0	0	0	423	15
United Arab Emirates	519	0	0	0	0	0	0	0	0	0	0	0	519	18
Subtotal Arab OPEC	2,151	0	0	0	0	0	0	0	0	0	0	0	2,151	74

See footnotes at end of table

Table 17. Imports of Crude Oil and Petroleum Products by Source and PAD District, February 1984
(Thousand Barrels) (continued)

Source	Crude Oil 1	LPG	Unfinished Oils	Gasoline Blending Components	Finished Motor Gasoline	Jet Fuel	Kerosene	Distill. Fuel Oil	Resid. Fuel Oil	Special Naphthas	Other Products 2	Total Products	Total Petroleum	Total (Daily Average)
PAD District II														
Other														
Canada	6,670	5,331	132	8	8	0	0	33	195	38	61	5,455	12,476	430
France	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mexico	3,898	0	0	0	0	0	0	0	0	0	0	0	3,898	134
Netherlands	549	0	0	0	0	0	0	0	0	0	0	0	549	19
Trinidad and Tobago	729	0	0	0	0	0	0	0	0	0	0	0	729	25
United Kingdom	152	0	0	0	0	0	0	0	0	0	1	1	152	5
Other Western Hemisphere	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Eastern Hemisphere	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal Other	11,997	5,331	132	8	8	0	0	33	195	38	62	5,455	17,804	614
Total Imports	14,148	5,331	132	8	8	0	0	33	195	38	62	5,455	19,955	688
PAD District III														
Arab OPEC														
Algeria	2,712	0	0	0	0	0	0	0	0	848	571	1,419	4,131	142
Iraq	1	0	0	0	0	0	0	0	0	0	0	0	1	(s)
Kuwait	0	0	0	0	0	0	0	0	524	0	0	524	524	18
Saudi Arabia	6,190	0	0	0	0	0	0	0	0	0	0	0	6,190	213
United Arab Emirates	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal Arab OPEC	8,902	0	0	0	0	0	0	0	524	848	571	1,943	10,845	374
Other OPEC														
Ecuador	3,234	0	0	0	0	0	0	0	0	0	0	0	3,234	112
Gabon	871	0	0	0	0	0	0	0	0	0	0	0	871	30
Indonesia	409	0	0	0	0	0	0	0	0	0	0	0	409	14
Nigeria	4,541	0	0	0	0	0	0	3	0	0	0	3	4,545	157
Venezuela	4,562	0	221	175	231	0	0	0	0	0	0	627	5,189	179
Subtotal Other OPEC	13,617	0	221	175	231	0	0	3	0	0	0	630	14,247	491
Other														
Angola	556	0	0	0	0	0	0	0	0	0	0	0	556	19
Australia	0	0	0	0	0	0	0	0	0	0	51	51	51	2
Bahamas	0	0	1,332	0	0	0	0	0	0	0	391	1,722	1,722	59
Brazil	0	0	0	0	234	0	0	0	0	50	0	285	285	10
Canada	(s)	0	0	0	0	0	0	0	0	0	0	0	(s)	(s)
France	0	0	0	0	0	0	0	0	0	0	8	8	8	(s)
Mexico	13,007	0	1,481	0	(s)	0	0	2	0	0	5	1,488	14,495	500
Netherlands	0	0	0	0	0	0	0	0	0	36	66	102	102	4
Netherlands Antilles	0	0	259	0	0	0	0	0	0	0	0	259	259	9
Norway	0	(s)	0	0	0	0	0	0	0	0	0	(s)	(s)	(s)
Other														
Peru	0	0	0	0	0	0	0	0	101	0	0	101	101	3
Puerto Rico	0	0	0	0	0	0	0	0	0	224	0	224	224	8
Romania	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Spain	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Trinidad and Tobago	467	0	0	0	0	0	0	0	0	0	0	0	467	16
United Kingdom	3,731	0	0	0	0	0	0	0	0	0	186	186	3,918	135

See footnotes at end of table.

Table 17. Imports of Crude Oil and Petroleum Products by Source and PAD District, February 1984
(Thousand Barrels) (continued)

Source	Crude Oil 1	LPG	Unfin- ished Oils	Gasoline Blending Compo- nents	Finished Motor Gasoline	Jet Fuel	Kero- sene	Distil. Fuel Oil	Resid. Fuel Oil	Special Naphthas	Other Prod- ucts 2	Total Prod- ucts	Total Petro- leum	Total (Daily Average)
PAD District III														
Other														
Virgin Islands	0	0	0	0	0	0	0	0	0	0	75	75	75	3
Other Western Hemisphere	140	0	196	0	0	0	0	0	0	11	40	247	387	13
Other Eastern Hemisphere	1,184	0	177	0	0	0	0	0	0	0	22	200	1,383	48
Subtotal Other	19,085	(s)	3,445	0	234	0	0	2	101	321	844	4,947	24,032	829
Total Imports	41,804	(s)	3,666	175	466	0	0	5	625	1,169	1,415	7,520	49,124	1,694
PAD District IV														
Other														
Canada	741	501	0	0	37	0	0	92	23	1	72	621	1,467	51
Subtotal Other	741	501	0	0	37	0	0	92	23	1	72	621	1,467	51
Total Imports	741	501	0	0	37	0	0	92	23	1	72	621	1,467	51
PAD District V														
Arab OPEC														
Algeria	413	0	0	0	0	0	0	0	0	0	0	0	413	14
Subtotal Arab OPEC	413	0	0	0	0	0	0	0	0	0	0	0	413	14
Other OPEC														
Indonesia	2,836	0	0	0	138	0	0	61	244	0	0	442	3,277	113
Venezuela	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal Other OPEC	2,836	0	0	0	138	0	0	61	244	0	0	442	3,277	113
Other														
Australia	666	0	0	0	0	0	0	0	0	0	0	0	666	23
Brunei	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Canada	327	545	0	0	0	0	(s)	0	0	16	9	395	898	31
France	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Malaysia	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mexico	0	5	0	0	0	0	0	1	7	0	3	17	17	1
Netherlands	0	(s)	0	0	0	0	0	0	0	0	0	(s)	(s)	(s)
Netherlands Antilles	0	0	0	0	0	0	0	0	0	0	0	0	0	0
People's Republic of China	0	0	201	313	0	0	0	0	0	0	0	514	514	18
United Kingdom	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Eastern Hemisphere	0	0	0	0	109	4	0	6	201	0	(s)	321	321	11
Subtotal Other	993	550	201	313	109	4	(s)	8	208	16	13	1,247	2,415	83
Total Imports	4,242	550	201	313	247	4	(s)	68	452	16	13	1,689	6,106	211

1 Includes crude oil imported for storage in the Strategic Petroleum Reserve.

2 Includes aviation gasoline, waxes, asphalt, lubricants, pentanes plus, naphthas less than 400 degrees F, other oils greater than 400 degrees F and miscellaneous products.

(s) = Less than 500 barrels or less than 500 barrels per day.

Note: Total may not equal sum of components due to independent rounding.

Source: See Explanatory Notes on Data Collection and Estimation.

**Table 18. Exports of Crude Oil and Petroleum Products by PAD District, February 1984
(Thousand Barrels)**

Commodity	Petroleum Administration for Defense Districts					
	I	II	III	IV	V	Total
Crude Oil (including lease condensate) ¹	0	420	0	0	4,935	5,355
Natural Gas Liquids	37	543	557	(s)	145	1,282
Pentanes Plus	0	80	0	0	0	80
Liquefied Petroleum Gases	37	463	557	(s)	145	1,202
Ethane	0	160	0	0	0	160
Propane	19	134	497	(s)	58	708
Normal Butane	18	89	60	(s)	87	254
Isobutane	0	80	0	0	0	80
Finished Motor Gasoline	23	1	25	0	1	50
Naphtha-Type Jet Fuel	0	0	63	0	0	63
Kerosene-Type Jet Fuel	0	40	0	0	28	68
Kerosene	(s)	0	(s)	0	0	1
Distillate Fuel Oil	2	4	348	0	849	1,203
Residual Fuel Oil	1	0	338	0	2,187	2,536
Naphtha < 400 Deg. for Petrochem. Feedstock	64	4	63	1	9	141
Other Oils > 400 Deg. for Petrochem. Feedstock	0	0	338	0	2	337
Special Naphthas	5	18	18	(s)	(s)	42
Lubricants	70	12	221	1	37	342
Waxes	4	(s)	15	0	5	23
Petroleum Coke	412	140	2,413	(s)	2,428	5,394
Asphalt	5	6	(s)	(s)	1	12
Miscellaneous Products	13	2	8	0	3	24
Total Product Exports	637	770	4,405	3	5,704	11,518
Total Exports	637	1,190	4,405	3	10,639	16,874

¹ Exports of crude oil are prohibited by law. However, some crude oil is exchanged with Canada on a barrel for barrel basis, and crude oil is shipped to U.S. Territories (especially Puerto Rico and the Virgin Islands) to be refined there. The Statistical Tracking Systems count these exchanges and shipments as imports and exports.

(s) = Less than 500 barrels.

Note: Total may not equal sum of components due to independent rounding.

Source: See Explanatory Notes on Data Collection and Estimation.

Table 19. Exports of Crude Oil and Petroleum Products by Destination, February 1984
(Thousand Barrels)

Destination	Crude Oil 1	LPG	Finished Motor Gasoline	Jet Fuel	Dist. Fuel Oil	Residual Fuel Oil	Special Naphthas	Lubricants	Waxes	Petroleum Coke	Asphalt	Other 2	Total	Total (Daily Average)
Argentina	0	0	0	0	0	0	0	6	(s)	0	0	0	6	(s)
Australia	0	(s)	0	0	0	0	3	2	(s)	122	(s)	5	133	5
Bahamas	0	8	1	0	345	491	0	2	0	0	0	0	846	29
Bahrain	0	0	0	0	0	0	(s)	(s)	0	64	0	0	64	2
Belgium & Luxembourg	0	(s)	0	0	0	0	(s)	3	(s)	521	(s)	(s)	524	18
Brazil	0	0	0	0	0	0	0	(s)	(s)	0	0	1	1	(s)
Cameroon	0	0	0	0	0	0	0	(s)	0	0	0	0	(s)	(s)
Canada	420	468	23	40	233	11	19	34	2	410	8	105	1,773	61
Chile	0	0	0	0	0	0	0	20	0	(s)	0	(s)	20	1
China (Taiwan)	0	(s)	0	0	0	0	0	7	0	(s)	(s)	1	8	(s)
Colombia	0	2	0	0	0	0	0	5	(s)	0	0	0	8	(s)
Costa Rica	0	20	0	0	0	0	2	6	(s)	0	0	1	30	1
Denmark	0	0	0	0	0	0	0	(s)	(s)	317	0	(s)	317	11
Dominican Republic	0	36	0	0	0	0	0	(s)	1	0	0	(s)	37	1
Ecuador	0	128	25	0	0	0	0	(s)	(s)	0	0	(s)	155	5
Egypt	0	0	0	0	0	0	0	1	0	0	0	0	1	(s)
El Salvador	0	0	0	0	0	0	0	13	(s)	0	0	(s)	13	(s)
Finland	0	0	0	0	0	0	0	(s)	0	0	0	0	(s)	(s)
France	0	38	0	0	0	0	0	1	0	304	0	70	413	14
French Pacific Isl	0	0	0	0	0	0	0	(s)	1	0	0	0	(s)	(s)
Ghana	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Greece	0	0	0	0	0	0	0	(s)	0	0	0	0	(s)	(s)
Guatemala	0	(s)	0	0	0	0	0	4	1	0	0	0	(s)	(s)
Guinea	0	(s)	0	0	0	0	(s)	1	0	0	0	0	2	(s)
Honduras	0	(s)	0	0	0	0	0	9	(s)	0	(s)	0	9	(s)
Hong Kong	0	0	0	0	0	0	2	1	(s)	0	(s)	1	5	(s)
India	0	(s)	0	0	0	0	0	(s)	(s)	38	0	0	38	1
Indonesia	0	(s)	0	0	0	0	0	2	0	0	0	(s)	3	(s)
Iran	0	0	0	0	0	0	1	0	0	0	0	0	1	(s)
Israel	0	0	0	0	0	0	1	(s)	(s)	0	0	0	4	(s)
Italy	0	104	0	0	(s)	0	0	1	(s)	460	0	183	748	26
Ivory Coast	0	0	0	0	0	29	0	(s)	0	0	0	0	29	1
Jamaica	0	1	0	0	0	526	0	(s)	3	910	(s)	21	1,481	51
Japan	0	3	0	0	0	0	(s)	10	0	0	0	0	1	(s)
Jordan	0	0	0	0	0	0	0	1	0	0	0	0	3	(s)
Korea, Republic of	0	0	0	0	0	1	0	2	(s)	0	0	3	5	(s)
Kuwait	0	0	0	0	0	140	0	(s)	0	(s)	0	0	2	(s)
Liberia	0	(s)	0	0	0	0	0	(s)	0	0	0	0	141	5
Malaysia	0	0	0	0	0	0	0	1	10	0	0	(s)	1	(s)
Mexico	0	318	1	28	(s)	0	1	97	0	54	0	7	516	18
Netherlands	0	0	0	0	0	0	(s)	1	(s)	753	0	5	760	26
Netherlands Antilles	0	0	0	33	106	237	0	(s)	0	0	0	0	376	13
New Zealand	0	0	0	0	0	0	0	(s)	0	0	0	0	1	(s)
Nicaragua	0	0	0	0	0	0	0	(s)	0	0	0	(s)	0	(s)
Nigeria	0	(s)	0	0	0	0	0	(s)	0	0	0	0	(s)	(s)
Norway	0	0	0	0	0	0	0	(s)	0	0	0	0	(s)	(s)
Panama	0	1	0	0	135	365	(s)	35	(s)	0	0	(s)	502	17
Peru	0	0	0	0	355	0	0	1	(s)	0	0	(s)	390	13
Philippines	0	0	0	0	0	0	0	(s)	0	0	0	0	1	(s)
Puerto Rico	930	12	(s)	0	0	(s)	1	13	2	(s)	0	15	973	34
Rep. of South Africa	0	0	0	0	0	0	0	1	(s)	0	(s)	78	80	3
Saudi Arabia	0	19	0	0	0	0	(s)	21	0	0	0	4	44	2
Singapore	0	(s)	0	0	0	0	0	3	(s)	0	0	(s)	3	(s)

See footnotes at end of table.

Table 19. Exports of Crude Oil and Petroleum Products by Destination, February 1984
(Thousand Barrels)
(continued)

Destination	Crude Oil ¹	LPG	Finished Motor Gasoline	Jet Fuel	Dist. Fuel Oil	Residual Fuel Oil	Special Naphthas	Lubri-cants	Waxes	Petro-leum Coke	Asphalt	Other ²	Total	Total (Daily Average)
Spain	0	0	0	0	0	0	0	1	(s)	1,105	0	0	1,106	38
Sunnam	0	0	0	0	0	0	0	(s)	0	15	0	(s)	15	1
Sweden	0	1	0	0	0	0	0	2	(s)	0	0	0	3	(s)
Switzerland	0	0	0	0	0	0	(s)	(s)	0	0	0	(s)	1	(s)
Thailand	0	(s)	0	0	0	0	1	15	(s)	0	0	1	18	1
Trinidad and Tobago	0	0	0	30	0	0	0	0	0	0	0	(s)	31	1
Turkey	0	0	0	0	0	0	0	0	(s)	0	0	38	38	1
United Arab Emirates	0	0	0	0	0	0	(s)	(s)	0	0	0	(s)	(s)	(s)
United Kingdom	0	38	(s)	0	4	0	(s)	1	1	30	0	3	77	3
U.S.S.R.	0	0	0	0	0	0	(s)	0	0	75	0	0	75	3
Uruguay	0	0	0	0	0	0	(s)	2	0	0	0	(s)	2	(s)
Venezuela	0	1	0	0	0	0	1	1	(s)	66	0	2	72	2
Virgin Islands	3,530	0	0	0	0	736	0	0	0	0	0	0	4,266	147
West Germany	0	(s)	0	0	0	0	0	2	1	52	0	2	58	2
Yugoslavia	0	0	0	0	0	0	0	(s)	0	95	0	0	95	3
Other	475	1	(s)	0	25	0	0	7	(s)	1	4	28	541	19
Total	5,355	1,202	50	131	1,203	2,536	42	342	23	5,394	12	583	16,874	582

¹ Exports of crude oil are prohibited by law. However, some crude oil is exchanged with Canada on a barrel for barrel basis, and crude oil is shipped to U.S. Territories (especially Puerto Rico and the Virgin Islands) to be refined there. The Statistical Tracking Systems count these exchanges and shipments as imports and exports.

² Includes pentanes plus, kerosene, naphtha less than 400 degrees F, other oils greater than 400 degrees F and miscellaneous products.

(s) = Less than 500 barrels or less than 500 barrels per day.

Note: Total may not equal sum of components due to independent rounding.

Source: See Explanatory Notes on Data Collection and Estimation.

Table 20. Stocks of Crude Oil and Petroleum Products by PAD District, February 1984
(Thousand Barrels)

Commodity	PAD District I			PAD District II						PAD District III				PAD District IV		United States	
	East Coast	Appalachian #1	Total	Appalachian #2	Ill., Ky.	Minn., Wisc., Dak.	Okla., Kans., Mo.	Total	Texas Inland	Texas Gulf Coast	La. Gulf Coast	No. La., Ark.	New Mexico	Total	Rocky Mnt.		Dist. V West Coast
Crude Oil (incl. lease condensate)																	
Refinery	—	—	13,190	—	—	—	—	13,887	—	—	—	—	—	43,859	2,041	25,211	98,188
Tank Farms and Pipelines	—	—	1,276	—	—	—	—	58,097	—	—	—	—	—	91,434	10,950	31,306	193,063
Leases	—	—	58	—	—	—	—	1,587	—	—	—	—	—	16,905	1,366	1,660	21,576
Strategic Petroleum Reserve¹	—	—	0	—	—	—	—	0	—	—	—	—	—	387,238	0	0	387,238
Alaskan In-Transit	—	—	0	—	—	—	—	0	—	—	—	—	—	0	0	27,399	27,399
Total	—	—	14,524	—	—	—	—	73,571	—	—	—	—	—	539,436	14,357	85,576	727,464
Total Stocks, All Oils (excl. Crude Oil)																	
Refinery	37,543	2,608	40,151	1,039	41,223	9,196	14,619	65,077	10,685	72,840	46,440	4,736	1,561	136,262	13,143	64,989	319,622
Bulk Terminal	—	—	123,936	—	—	—	—	81,125	—	—	—	—	—	69,049	3,058	21,515	298,683
Pipeline	—	—	26,502	—	—	—	—	36,367	—	—	—	—	—	39,058	2,849	4,986	109,762
Natural Gas Processing Plant	129	36	195	0	274	64	1,233	1,571	1,623	3,454	915	72	229	6,293	238	101	8,368
Total	—	—	190,754	—	—	—	—	184,140	—	—	—	—	—	250,662	19,288	91,591	736,435
Pentanes Plus																	
Refinery	16	0	16	0	103	80	152	335	61	107	206	54	12	440	18	13	822
Bulk Terminal	—	—	33	—	—	—	—	2,149	—	—	—	—	—	1,588	1	15	3,786
Pipeline	—	—	0	—	—	—	—	487	—	—	—	—	—	1,316	85	5	1,893
Natural Gas Processing Plant	4	3	7	0	61	20	251	332	456	451	392	28	31	1,358	82	22	1,801
Total	—	—	56	—	—	—	—	3,303	—	—	—	—	—	4,702	186	55	8,302
Liquefied Petroleum Gases																	
Refinery	600	16	616	189	1,471	137	624	2,421	198	603	1,773	21	26	2,621	301	683	6,642
Bulk Terminal	—	—	1,117	—	—	—	—	16,726	—	—	—	—	—	42,759	78	539	61,219
Pipeline	—	—	1,235	—	—	—	—	6,963	—	—	—	—	—	6,024	439	0	14,661
Natural Gas Processing Plant	104	33	137	0	211	44	982	1,237	1,064	3,002	523	42	198	4,829	142	79	6,424
Total	—	—	3,105	—	—	—	—	27,347	—	—	—	—	—	56,233	960	1,301	88,946
Ethane																	
Refinery	24	0	24	0	6	15	0	21	0	7	0	0	0	7	0	0	52
Bulk Terminal	—	—	0	—	—	—	—	3,185	—	—	—	—	—	11,766	0	0	14,951
Pipeline	—	—	0	—	—	—	—	1,843	—	—	—	—	—	1,987	137	0	3,967
Natural Gas Processing Plant	0	0	0	0	25	0	269	294	103	1,290	0	0	18	1,411	2	0	1,707
Total	—	—	24	—	—	—	—	5,343	—	—	—	—	—	15,171	139	0	20,677

See footnotes at end of table.

Table 20. Stocks of Crude Oil and Petroleum Products by PAD District, February 1984
(Thousand Barrels) (continued)

Commodity	PAD District I			PAD District II					PAD District III				PAD District IV		United States		
	East Coast	Appalachian #1	Total	Appalachian #2	Ind., Ill., Ky.	Minn., Wisc., Daks.	Okla., Kans., Mo.	Total	Texas Inland	Texas Gulf Coast	La. Gulf Coast	No. La., Ark.	New Mexico	Total		Dist. IV Rocky Mt.	Dist. V West Coast
Propane for Petrochemical Feedstock Use																	
Refinery	54	0	54	0	81	0	0	81	2	5	69	0	0	76	0	0	211
Total	54	—	54	—	—	—	—	81	—	—	—	—	—	76	0	0	211
Propane For Other Uses																	
Refinery	465	5	470	2	821	31	200	1,054	56	61	921	5	6	1,049	108	263	2,944
Bulk Terminal	—	—	978	—	—	—	—	10,881	—	—	—	—	—	16,947	77	175	29,058
Pipeline	—	—	1,129	—	—	—	—	3,261	—	—	—	—	—	2,625	181	0	7,196
Natural Gas Processing Plant	87	33	120	0	134	32	508	674	462	826	390	20	97	1,795	93	59	2,741
Total	—	—	2,697	—	—	—	—	15,870	—	—	—	—	—	22,416	459	497	41,939
Normal Butane For Petro. Feed Use																	
Refinery	0	0	0	0	0	26	0	26	0	11	0	2	0	13	6	3	48
Total	—	—	0	—	—	—	—	26	—	—	—	—	—	13	6	3	48
Normal Butane For Other Uses																	
Refinery	57	11	68	101	345	32	277	755	95	283	362	3	13	756	149	367	2,095
Bulk Terminal	—	—	100	—	—	—	—	1,305	—	—	—	—	—	8,549	1	244	10,199
Pipeline	—	—	81	—	—	—	—	1,383	—	—	—	—	—	921	76	0	2,461
Natural Gas Processing Plant	15	0	15	0	27	9	119	155	428	574	80	15	69	1,166	43	14	1,393
Total	—	—	264	—	—	—	—	3,598	—	—	—	—	—	11,392	269	625	16,148
Isobutane																	
Refinery	0	0	0	86	218	33	147	484	45	236	421	11	7	720	38	50	1,292
Bulk Terminal	—	—	39	—	—	—	—	1,355	—	—	—	—	—	5,497	0	120	7,011
Pipeline	—	—	25	—	—	—	—	476	—	—	—	—	—	491	45	0	1,037
Natural Gas Processing Plant	2	0	2	0	25	3	86	114	71	312	53	7	14	457	4	6	583
Total	—	—	66	—	—	—	—	2,429	—	—	—	—	—	7,165	87	176	9,923
Other Hydrocarbons and Alcohol																	
Refinery	107	0	107	0	131	0	0	131	1	88	12	0	0	101	0	7	346
Total	—	—	107	—	—	—	—	131	—	—	—	—	—	101	0	7	346
Unfinished Oils																	
Refinery	3,801	162	3,963	42	2,730	137	1,168	4,077	796	8,180	6,022	159	64	15,231	449	5,231	28,951
Naphthas and Lighter	1,773	27	1,800	0	2,131	2	560	2,693	535	6,062	1,777	17	6	8,397	354	3,744	16,988
Kerosene and Lighter Gas Oils	4,638	295	4,933	94	4,210	353	1,635	6,292	1,085	10,360	7,651	148	160	19,404	1,049	11,552	43,230
Heavy Gas Oils	1,717	266	1,983	2	2,805	14	1,084	3,905	321	4,720	2,893	41	68	7,983	611	5,987	20,469
Residuum	11,929	750	12,679	138	11,876	506	4,447	16,967	2,737	29,332	18,283	365	298	51,015	2,463	26,514	109,636
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

See footnotes at end of table.

Table 20. Stocks of Crude Oil and Petroleum Products by PAD District, February 1984
(Thousand Barrels) (continued)

Commodity	PAD District I			PAD District II					PAD District III				PAD District IV		United States		
	East Coast	Appalachian #1	Total	Appalachian #2	Ind., Ill., Ky.	Minn., Wisc., Dak.	Okla., Kans., Mo.	Total	Texas Inland	Texas Gulf Coast	La. Gulf Coast	No. La. Ark.	New Mexico	Total		PAD Dist. IV Rocky Mtn.	PAD Dist. V West Coast
Motor Gasoline Blending Components																	
Refinery	4,263	84	4,347	37	5,409	838	1,717	8,001	1,580	7,875	6,483	173	271	16,382	2,452	8,181	39,363
Bulk Terminal	—	—	88	—	—	—	—	129	—	—	—	—	—	665	0	193	1,075
Pipeline	—	—	0	—	—	—	—	29	—	—	—	—	—	13	0	42	0
Total	—	—	4,435	—	—	—	—	8,159	—	—	—	—	—	17,060	2,452	8,374	40,480
Aviation Gasoline Blending Components																	
Refinery	0	0	0	0	141	0	7	148	0	11	203	0	0	214	0	26	388
Total	—	—	0	—	—	—	—	148	—	—	—	—	—	214	0	26	388
Total Finished Motor Gasoline																	
Refinery	5,242	247	5,489	120	6,096	1,825	2,788	10,829	2,559	9,460	5,036	986	244	18,285	2,838	7,657	45,098
Bulk Terminal	—	—	40,828	—	—	—	—	32,262	—	—	—	—	—	12,153	1,819	10,192	97,255
Pipeline	—	—	14,452	—	—	—	—	17,197	—	—	—	—	—	18,678	1,615	2,348	54,290
Natural Gas Processing Plant	21	0	21	0	0	0	0	0	0	0	0	0	0	0	13	0	34
Total	—	—	60,791	—	—	—	—	60,288	—	—	—	—	—	49,116	6,285	20,197	196,677
Finished Leaded Motor Gasoline																	
Refinery	2,141	138	2,279	68	2,503	1,121	1,578	5,270	1,405	4,037	2,103	479	138	8,162	1,711	3,470	20,892
Bulk Terminal	—	—	18,954	—	—	—	—	16,692	—	—	—	—	—	6,151	1,177	4,976	47,950
Pipeline	—	—	7,572	—	—	—	—	8,862	—	—	—	—	—	8,985	1,011	1,112	27,642
Natural Gas Processing Plant	8	0	8	0	0	0	0	0	0	0	0	0	0	0	9	0	17
Total	—	—	28,913	—	—	—	—	30,824	—	—	—	—	—	23,298	3,908	9,558	96,501
Finished Unleaded Motor Gasoline																	
Refinery	3,101	109	3,210	52	3,593	704	1,210	5,559	1,154	5,423	2,933	507	106	10,123	1,127	4,187	24,206
Bulk Terminal	—	—	21,875	—	—	—	—	15,570	—	—	—	—	—	6,002	642	5,216	49,305
Pipeline	—	—	6,780	—	—	—	—	8,335	—	—	—	—	—	9,693	604	1,236	26,648
Natural Gas Processing Plant	13	0	13	0	0	0	0	0	0	0	0	0	0	0	4	0	17
Total	—	—	31,878	—	—	—	—	29,464	—	—	—	—	—	25,818	2,377	10,639	100,176
Finished Aviation Gasoline																	
Refinery	45	0	45	0	223	0	10	233	120	395	160	0	0	675	44	206	1,203
Bulk Terminal	—	—	453	—	—	—	—	347	—	—	—	—	—	98	13	265	1,176
Pipeline	—	—	0	—	—	—	—	82	—	—	—	—	—	19	0	115	216
Natural Gas Processing Plant	0	0	0	0	0	0	0	0	44	0	0	0	0	44	0	0	44
Total	—	—	498	—	—	—	—	662	—	—	—	—	—	836	57	586	2,639

See footnotes at end of table.

Table 20. Stocks of Crude Oil and Petroleum Products by PAD District, February 1984
(Thousand Barrels) (continued)

Commodity	PAD District I			PAD District II						PAD District III				PAD District IV		United States	
	East Coast	Appalachian #1	Total	Appalachian #2	Ind., Ill., Ky.	Minn., Wisc., Dak.	Okla., Kans., Mo.	Total	Texas Inland	Texas Gulf Coast	La. Gulf Coast	No. La., Ark.	New Mexico	Total	Rocky Mtn.		Dist. V West Coast
Naphtha-Type Jet Fuel																	
Refinery	305	29	334	0	509	122	169	800	224	710	212	157	120	1,423	174	687	3,418
Bulk Terminal	—	—	320	—	—	—	—	570	—	—	—	—	—	204	18	550	1,662
Pipeline	—	—	116	—	—	—	—	53	—	—	—	—	—	441	117	342	1,069
Total	—	—	770	—	—	—	—	1,423	—	—	—	—	—	2,068	309	1,579	6,149
Kerosene-Type Jet Fuel																	
Refinery	1,014	0	1,014	35	1,425	232	90	1,782	299	2,190	2,139	10	44	4,692	321	3,436	11,235
Bulk Terminal	—	—	4,348	—	—	—	—	3,334	—	—	—	—	—	1,098	228	1,766	10,774
Pipeline	—	—	3,069	—	—	—	—	2,411	—	—	—	—	—	4,513	111	786	10,890
Total	—	—	8,431	—	—	—	—	7,527	—	—	—	—	—	10,293	660	5,988	32,899
Kerosene																	
Refinery	362	42	404	0	527	45	274	846	73	602	661	46	64	1,446	3	172	2,871
Bulk Terminal	—	—	3,697	—	—	—	—	887	—	—	—	—	—	529	19	47	5,179
Pipeline	—	—	392	—	—	—	—	312	—	—	—	—	—	498	0	0	1,202
Natural Gas Processing Plant	0	0	0	0	0	0	0	0	2	0	0	0	0	2	0	0	2
Total	—	—	4,493	—	—	—	—	2,045	—	—	—	—	—	2,475	22	219	9,254
Distillate Fuel Oils																	
Refinery	6,524	283	6,807	63	5,954	1,495	2,563	10,075	1,214	8,802	3,796	682	192	14,676	2,008	4,631	38,197
Bulk Terminal	—	—	40,348	—	—	—	—	18,166	—	—	—	—	—	4,830	735	4,992	69,071
Pipeline	—	—	7,201	—	—	—	—	8,808	—	—	—	—	—	7,272	482	1,147	24,910
Natural Gas Processing Plant	0	0	0	0	0	0	0	0	2	1	0	0	0	3	0	0	3
Total	—	—	54,356	—	—	—	—	37,049	—	—	—	—	—	26,781	3,225	10,770	132,181
Residual Fuel Oils																	
Refinery	3,074	90	3,164	44	1,860	289	225	2,438	334	5,381	2,621	245	6	8,587	401	7,595	22,185
Bulk Terminal	—	—	27,602	—	—	—	—	1,742	—	—	—	—	—	4,273	0	1,621	35,238
Pipeline	—	—	31	—	—	—	—	0	—	—	—	—	—	1	0	143	175
Total	—	—	30,797	—	—	—	—	4,180	—	—	—	—	—	12,861	401	9,359	57,598
Naphtha < 400 Deg. Petro. Feedstock																	
Refinery	326	0	326	0	104	0	49	153	88	706	209	48	0	1,051	0	145	1,675
Total	326	0	326	0	104	0	49	153	88	706	209	48	0	1,051	0	145	1,675
Other Oils > 400 Deg. Petro. Feedstock																	
Refinery	4	0	4	0	19	0	0	19	191	1,051	255	0	0	1,497	2	412	1,934
Total	4	0	4	0	19	0	0	19	191	1,051	255	0	0	1,497	2	412	1,934

See footnotes at end of table.

Table 20. Stocks of Crude Oil and Petroleum Products by PAD District, February 1984
(Thousand Barrels) (continued)

Commodity	PAD District I			PAD District II					PAD District III					PAD District IV		United States	
	East Coast	Appalachian #1	Total	Appalachian #2	Ind., Ill., Ky.	Minn., Wisc., Dak.	Okla., Kans., Mo.	Total	Texas Inland	Texas Gulf Coast	La. Gulf Coast	No. La., Ark.	New Mexico	Total	Rocky Mtn.		Dist. V
Special Naphthas																	
Refinery	99	55	154	0	213	0	164	377	22	1,347	54	173	0	1,596	9	202	2,338
Bulk Terminal	—	—	468	—	—	—	—	127	—	—	—	—	—	122	0	31	748
Natural Gas Processing Plant	0	0	0	0	0	0	0	0	48	0	0	0	0	48	0	0	48
Total	—	—	622	—	—	—	—	504	—	—	—	—	—	1,766	9	233	3,134
Lubricants																	
Refinery	1,216	853	2,069	0	759	0	268	1,027	27	2,914	1,246	581	0	4,768	81	545	8,490
Bulk Terminal	—	—	1,038	—	—	—	—	1,070	—	—	—	—	—	255	3	880	3,246
Total	—	—	3,107	—	—	—	—	2,097	—	—	—	—	—	5,023	84	1,425	11,736
Waxes																	
Refinery	9	107	116	0	22	0	45	67	14	201	133	74	0	422	0	52	657
Total	—	—	116	—	—	—	—	67	—	—	—	—	—	422	0	52	657
Petroleum Coke																	
Refinery	1,009	0	1,009	0	407	676	122	1,205	1	179	1,624	195	0	1,999	138	1,973	6,324
Total	1,009	0	1,009	0	407	676	122	1,205	1	179	1,624	195	0	1,999	138	1,973	6,324
Asphalt and Road Oil																	
Refinery	1,211	21	1,232	413	3,828	1,941	883	7,065	911	401	1,278	868	284	3,742	1,885	1,703	15,627
Bulk Terminal	—	—	3,407	—	—	—	—	3,590	—	—	—	—	—	439	144	348	7,928
Total	—	—	4,639	—	—	—	—	10,655	—	—	—	—	—	4,181	2,029	2,051	23,555
Miscellaneous Products																	
Refinery	188	31	219	0	126	10	22	158	31	485	66	58	0	640	5	149	1,171
Bulk Terminal	—	—	188	—	—	—	—	26	—	—	—	—	—	36	0	76	326
Pipeline	—	—	6	—	—	—	—	25	—	—	—	—	—	283	0	100	414
Natural Gas Processing Plant	0	0	0	0	2	0	0	2	7	0	0	2	0	9	1	0	12
Total	—	—	413	—	—	—	—	211	—	—	—	—	—	968	6	325	1,923
Total Stocks, All Oils																	
	—	—	205,278	—	—	—	—	257,711	—	—	—	—	—	790,098	33,645	177,167	1,463,899

1. Includes 33,879 thousand barrels of domestic crude oil.
Source: See Explanatory Notes on Data Collection and Estimation.

— Not Applicable.

Table 21. Movements of Crude Oil and Petroleum Products by Pipeline, Tanker, and Barge between PAD Districts, February 1984
(Thousand Barrels)

Commodity	From I to					From II to					From III to					From IV to					From V to				
	II	III	V	I	III	IV	V	I	II	IV	V	I	II	III	V	I	II	III	V	I	II	III	IV		
Crude Oil (Tanker and Barge only)	0	0	0	0	0	0	0	365	1,828	0	0	0	0	0	0	0	0	0	0	3,134	535	13,089	0		
Petroleum Products	7,747	147	0	3,036	8,280	2,243	0	81,531	24,160	0	2,027	1,436	635	88	1,098	242	0	258	0	0	0	0	0		
Pentanes Plus	0	0	0	0	70	0	0	0	663	0	0	77	88	0	0	0	0	0	0	0	0	0	0		
Liquefied Petroleum Gases	0	0	0	947	5,288	164	0	1,839	8,123	0	0	670	547	0	0	0	0	0	0	0	0	0	0		
Unfinished Oils	0	0	0	0	0	0	0	459	0	0	0	0	0	0	0	0	0	223	0	0	0	0	0		
Motor Gasoline Blending Components	0	0	0	0	0	0	0	38	0	0	0	0	0	0	0	0	0	35	0	0	0	0	0		
Aviation Gasoline Blending Components	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Finished Motor Gasoline	5,103	0	0	1,122	2,160	1,198	0	42,327	10,675	0	955	356	0	0	855	0	0	0	0	0	0	0	0		
Finished Leaded Motor Gasoline	2,781	0	0	280	897	613	0	15,985	4,962	0	508	218	0	0	540	0	0	0	0	0	0	0	0		
Finished Unleaded Motor Gasoline	2,322	0	0	842	1,263	585	0	26,342	5,713	0	447	138	0	0	315	0	0	0	0	0	0	0	0		
Finished Aviation Gasoline	0	0	0	0	0	18	0	175	152	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Naphtha-Type Jet Fuel	102	0	0	0	107	0	0	276	2	0	294	87	0	0	68	0	0	0	0	0	0	0	0		
Kerosene-Type Jet Fuel	329	0	0	128	88	754	0	9,664	2,341	0	173	0	0	0	39	0	0	0	0	0	0	0	0		
Kerosene	80	0	0	0	0	0	0	1,191	131	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Distillate Fuel Oil	1,829	0	0	412	439	109	0	22,972	1,548	0	319	246	0	0	136	242	0	0	0	0	0	0	0		
Residual Fuel Oil	1	135	0	186	57	0	0	1,400	55	0	196	0	0	0	0	0	0	0	0	0	0	0	0		
Naphtha and Other Oils for Petro.																									
Feedstock	50	0	0	27	0	0	0	9	17	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Special Naphthas	0	0	0	0	0	0	0	195	105	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Lubricants	0	2	0	45	41	0	0	518	277	0	90	0	0	0	0	0	0	0	0	0	0	0	0		
Waxes	0	0	0	0	0	0	0	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Asphalt and Road Oil	0	0	0	0	0	0	0	188	58	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Miscellaneous Products	253	10	0	169	30	0	0	271	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Total All Products	7,747	147	0	3,036	8,280	2,243	0	81,916	25,988	0	2,027	1,436	635	88	1,098	3,376	535	13,347	0	0	0	0	0		

Source: See Explanatory Notes on Data Collection and Estimation.

Table 22. Movements of Petroleum Products by Pipeline between PAD Districts, February 1984
(Thousand Barrels)

Commodity	From I to			From II to			From III to			From IV to			From V to		
	II	III	I	I	III	IV	I	II	IV	V	II	III	V	III	IV
Pentanes Plus	0	0	0	0	70	0	0	0	0	0	0	0	0	0	0
Liquefied Petroleum Gases	0	0	0	947	5,288	164	1,643	8,123	0	0	0	0	0	0	0
Motor Gasoline Blending Components	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Aviation Gasoline Blending Components	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Finished Motor Gasoline	3,557	0	0	960	2,148	1,198	32,475	10,066	0	955	356	0	855	0	0
Finished Lead Motor Gasoline	1,910	0	223	885	613	12,247	4,698	0	508	218	0	0	540	0	0
Finished Unleaded Motor Gasoline	1,647	0	737	1,263	585	20,228	5,368	0	447	138	0	0	315	0	0
Finished Aviation Gasoline	0	0	0	0	0	18	7	130	0	0	0	0	0	0	0
Naphtha-Type Jet Fuel	0	0	0	0	107	0	261	2	294	87	0	0	68	0	0
Kerosene-Type Jet Fuel	213	0	118	88	754	6,515	1,994	0	173	0	0	0	39	0	0
Kerosene	55	0	0	0	0	1,025	122	0	0	0	0	0	0	0	0
Distillate Fuel Oil	1,297	0	393	439	109	17,014	1,355	0	319	246	0	0	136	0	0
Residual Fuel Oil	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Miscellaneous Products	0	0	144	0	0	0	0	0	0	0	0	0	0	0	0
Total	5,122	0	2,562	8,140	2,243	58,940	22,455	0	1,741	1,436	635	1,098	0	0	0

Source: See Explanatory Notes on Data Collection and Estimation.

Table 23. Movements of Crude Oil and Petroleum Products by Tanker and Barge between PAD Districts, February 1984
(Thousand Barrels)

Commodity	From I to			From II to			From III to				From V to				
	II	III	V	I	III	V	I	New Eng	Cant Atl	Low Atl	II	V	I	II	III
Crude Oil	0	0	0	0	0	0	0	385	0	385	0	1,828	0	3,134	535 13,089
Petroleum Products	2,625	147	0	474	140	0	22,591	2,006	5,068	15,517	1,705	286	242	0	258
Liquefied Petroleum Gases	0	0	0	0	0	0	196	0	0	196	0	0	0	0	0
Unfinished Oils	0	0	0	0	0	0	459	0	371	88	0	0	0	0	223
Motor Gasoline Blending Components	0	0	0	0	0	0	38	0	0	38	0	0	0	0	35
Finished Motor Gasoline	1,546	0	0	162	12	0	9,852	372	460	9,020	609	0	0	0	0
Finished Leaded Motor Gasoline	871	0	0	57	12	0	3,738	77	48	3,613	264	0	0	0	0
Finished Unleaded Motor Gasoline	675	0	0	105	0	0	6,114	295	412	5,407	345	0	0	0	0
Finished Aviation Gasoline	0	0	0	0	0	0	168	0	54	114	22	0	0	0	0
Naphtha-Type Jet Fuel	102	0	0	0	0	0	15	15	0	0	0	0	0	0	0
Kerosene-Type Jet Fuel	116	0	0	10	0	0	3,149	401	856	1,892	347	0	0	0	0
Kerosene	25	0	0	0	0	0	166	53	99	14	9	0	0	0	0
Distillate Fuel Oil	532	0	0	19	0	0	5,958	974	2,422	2,562	193	0	242	0	0
Residual Fuel Oil	1	135	0	186	57	0	1,400	191	95	1,114	55	196	0	0	0
Naphtha and Other Oils for Petro. Feed Use	50	0	0	27	0	0	9	0	0	9	17	0	0	0	0
Special Naphthas	0	0	0	0	0	0	195	0	109	86	105	0	0	0	0
Lubricants	0	2	0	45	41	0	518	0	367	151	277	90	0	0	0
Waxes	0	0	0	0	0	0	9	0	9	0	0	0	0	0	0
Asphalt and Road Oil	0	0	0	0	0	0	188	0	0	188	58	0	0	0	0
Miscellaneous Products	253	10	0	25	30	0	271	0	226	45	13	0	0	0	0
Total	2,625	147	0	474	140	0	22,976	2,006	5,453	15,517	3,533	286	3,376	535 13,347	

Source: See Explanatory Notes on Data Collection and Estimation.

Table 24. Net Movements of Crude Oil and Petroleum Products by Pipeline, Tanker and Barge between PAD Districts, February 1984
(Thousand Barrels)

Commodity	PAD District I			PAD District II			PAD District III			PAD District IV			PAD District V		
	Receipts into PADD I	Shipments from PADD I	Net Receipts into PADD I	Receipts into PADD II	Shipments from PADD II	Net Receipts into PADD II	Receipts into PADD III	Shipments from PADD III	Net Receipts into PADD III	Receipts into PADD IV	Shipments from PADD IV	Net Receipts into PADD IV	Receipts into PADD V	Shipments from PADD V	Net Receipts into PADD V
Crude Oil (Tanker and Barge only)	3,519	0	3,519	2,363	0	2,363	13,089	2,213	10,876	0	0	0	0	16,758	-16,758
Petroleum Products	84,809	7,894	76,915	33,343	13,559	19,784	9,320	107,718	-98,398	2,243	3,169	-926	3,125	500	2,625
Pentanes Plus	0	0	0	740	70	670	158	663	-505	0	165	-165	0	0	0
Liquefied Petroleum Gases	2,786	0	2,786	8,793	6,399	2,394	5,835	9,962	-4,127	164	1,217	-1,053	0	0	0
Unfinished Oils	459	0	459	0	0	0	223	459	-236	0	0	0	0	223	-223
Motor Gasoline Blending Components	38	0	38	0	0	0	35	38	-3	0	0	0	0	35	-35
Aviation Gasoline Blending Components	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Finished Motor Gasoline	43,449	5,103	38,346	16,134	4,480	11,654	2,160	53,957	-51,797	1,198	1,211	-13	1,810	0	1,810
Finished Leaded Motor Gasoline	16,265	2,781	13,484	7,961	1,790	6,171	897	21,455	-20,558	613	758	-145	1,048	0	1,048
Finished Unleaded Motor Gasoline	27,184	2,322	24,862	8,173	2,690	5,483	1,263	32,502	-31,239	585	453	132	762	0	762
Finished Aviation Gasoline	175	0	175	152	18	134	0	327	-327	18	0	18	0	0	0
Naptha-Type Jet Fuel	276	102	174	191	107	84	107	572	-465	0	155	-155	362	0	362
Kerosene-Type Jet Fuel	9,792	329	9,463	2,670	970	1,700	88	12,178	-12,080	754	39	715	212	0	212
Kerosene	1,191	80	1,111	211	0	211	0	1,322	-1,322	0	0	0	0	0	0
Distillate Fuel Oil	23,626	1,829	21,797	3,623	960	2,663	439	24,839	-24,400	109	382	-273	455	242	213
Residual Fuel Oil	1,586	136	1,450	56	243	-187	192	1,651	-1,459	0	0	0	196	0	196
Naptha and Other Oils for Petro.															
Feedstock Use	36	50	-14	67	27	40	0	26	-26	0	0	0	0	0	0
Special Naphtas	195	0	195	105	0	105	0	300	-300	0	0	0	0	0	0
Lubricants	563	2	561	277	86	191	43	885	-842	0	0	0	90	0	90
Waxes	9	0	9	0	0	0	0	9	-9	0	0	0	0	0	0
Asphalt and Road Oil	188	0	188	58	0	58	0	246	-246	0	0	0	0	0	0
Miscellaneous Products	440	263	177	266	199	67	40	284	-244	0	0	0	0	0	0
Total All Products	88,328	7,894	80,434	35,706	13,559	22,147	22,409	109,931	-87,522	2,243	3,169	-926	3,125	17,258	-14,133

Source: See Explanatory Notes on Data Collection and Estimation.

Table 25. Production of Residual Fuel Oil by Sulfur Content, February 1984
(Thousand Barrels)

Commodity	PAD District I			PAD District II					PAD District III				PAD		United States		
	East Coast	Appalachian #1	Total	Appalachian #2	Ind., Ill., Ky	Minn., Wisc., Daks.	Okla., Kans., Mo.	Total	Texas Inland	Texas Gulf Coast	La. Gulf Coast	No. La., Ark.	New Mexico	Total	Dist. IV Rocky Mt.	Dist. V West Coast	
Residual Fuel Oil	4,146	142	4,288	66	1,928	249	388	2,631	656	7,914	3,034	293	12	11,909	301	9,944	29,073
0.00 to 0.30% Sulfur	539	43	582	0	168	0	27	195	37	680	319	60	6	1,102	89	564	2,532
0.31 to 1.00% Sulfur	2,439	2	2,441	33	603	0	56	692	472	1,861	1,057	171	0	3,561	66	2,155	8,915
Greater Than 1.00% Sulfur	1,168	97	1,265	33	1,157	249	305	1,744	147	5,373	1,658	62	6	7,246	146	7,225	17,626

Source: See Explanatory Notes on Data Collection and Estimation.

Source: See Explanatory Notes on Data Collection and Estimation.

Table 26. Stocks of Residual Fuel Oil by Sulfur Content, February 1984
(Thousand Barrels)

Commodity	PAD District I			PAD District II					PAD District III					PAD		United States	
	East Coast	Appalachian	Total	Appalachian #2	Ind., Ill., Ky.	Minn., Wisc., Daks.	Okla., Kans., Mo.	Total	Texas Inland	Texas Gulf Coast	La. Gulf Coast	No. La. Ark.	New Mexico	Total	PAD Dist. IV Rocky Mt.		PAD Dist. V West Coast
Residual Fuel Oil - 0.00 to 0.30% Sulfur																	
Refinery	502	38	540	0	156	0	38	194	44	168	134	11	3	360	90	212	1,396
Bulk Terminal	—	—	6,072	—	—	—	—	9	—	—	—	—	—	0	0	9	6,090
Total	—	—	6,612	—	—	—	—	203	—	—	—	—	—	360	90	221	7,486
Residual Fuel Oil - 0.31 to 1.00% Sulfur																	
Refinery	1,701	3	1,704	40	626	0	26	692	111	1,628	1,134	183	0	3,056	62	2,133	7,647
Bulk Terminal	—	—	10,692	—	—	—	—	492	—	—	—	—	—	2,248	0	522	13,954
Total	—	—	12,396	—	—	—	—	1,184	—	—	—	—	—	5,304	62	2,655	21,601
Residual Fuel Oil - Greater than 1.00% Sulfur																	
Refinery	871	49	920	4	1,098	289	161	1,552	179	3,585	1,353	51	3	5,171	249	5,250	13,142
Bulk Terminal	—	—	10,838	—	—	—	—	1,241	—	—	—	—	—	2,025	0	1,090	15,194
Total	—	—	11,758	—	—	—	—	2,793	—	—	—	—	—	7,196	249	6,340	28,336

Source: See Explanatory Notes on Data Collection and Estimation

— Not Applicable

Table 27. Movements of Residual Fuel Oil by Tanker and Barge between PAD Districts, By Sulfur Content, February 1984
(Thousand Barrels)

Commodity	From I to			From II to			From III to					From V to		
	II	III	V	I	III	V	I	New Eng	Cent Atl	Low Atl	II	V	I	III
Residual Fuel Oil	1	135	0	186	57	0	1,400	191	95	1,114	55	196	0	0
0.00 to 0.30% Sulfur	0	0	0	0	57	0	95	0	95	0	0	0	0	0
0.31 to 1.00% Sulfur	1	0	0	0	0	0	403	191	0	212	0	0	0	0
Greater Than 1.00% Sulfur	0	135	0	186	0	0	902	0	0	902	55	0	0	0

Source: See Explanatory Notes on Data Collection and Estimation.

Table 28. Imports of Residual Fuel Oil by Sulfur Content by Country of Origin, February 1984
(Thousand Barrels)

Country	Residual Fuel Oil			
	0.00 to 0.30%	0.31 to 1.00%	Greater Than 1.00%	Total
Arab OPEC				
Algeria	1,374	0	0	1,374
Iraq	0	0	0	0
Kuwait	524	0	0	524
Libya	0	0	0	0
Qatar	0	0	0	0
Saudi Arabia	0	0	0	0
United Arab Emirates	0	0	434	434
Subtotal Arab OPEC	1,898	0	434	2,332
Other OPEC				
Ecuador	0	0	118	118
Gabon	246	0	0	246
Indonesia	147	51	45	244
Iran	0	0	0	0
Nigeria	69	21	0	90
Venezuela	1,310	478	3,220	5,008
Subtotal Other OPEC	1,773	550	3,383	5,706
Other				
Angola	0	268	0	268
Australia	0	0	0	0
Bahamas	1,087	0	218	1,305
Bolivia	0	0	0	0
Brazil	279	0	0	279
Brunei	0	0	0	0
Canada	236	263	212	711
Congo	190	0	0	190
Egypt	0	0	0	0
France	0	0	0	0
Ghana	0	0	0	0
Liberia	198	0	0	198
Malaysia	0	0	0	0
Mexico	0	0	307	307
Netherlands	512	237	0	748
Netherlands Antilles	1,569	0	4,268	5,838
Norway	0	0	0	0
Oman	273	0	312	585
People's Republic of China	0	0	0	0
Peru	646	0	261	906
Puerto Rico	0	0	0	0
Romania	0	0	0	0
Spain	0	409	0	409
Syria	0	0	0	0
Trinidad	0	0	585	585
Tunisia	0	0	0	0
United Kingdom	526	0	0	526
Virgin Islands	2,653	3,379	208	6,240
Yugoslavia	0	0	0	0
Zaire	0	0	0	0
Other				
Other Western Hemisphere	828	363	843	2,034
Other Eastern Hemisphere	1,695	1,179	48	2,922
Subtotal Other	10,692	6,098	7,262	24,051
Total Imports	14,363	6,647	11,079	32,089

(*) = Less than 500 barrels.

Note: Total may not equal sum of components due to independent rounding.

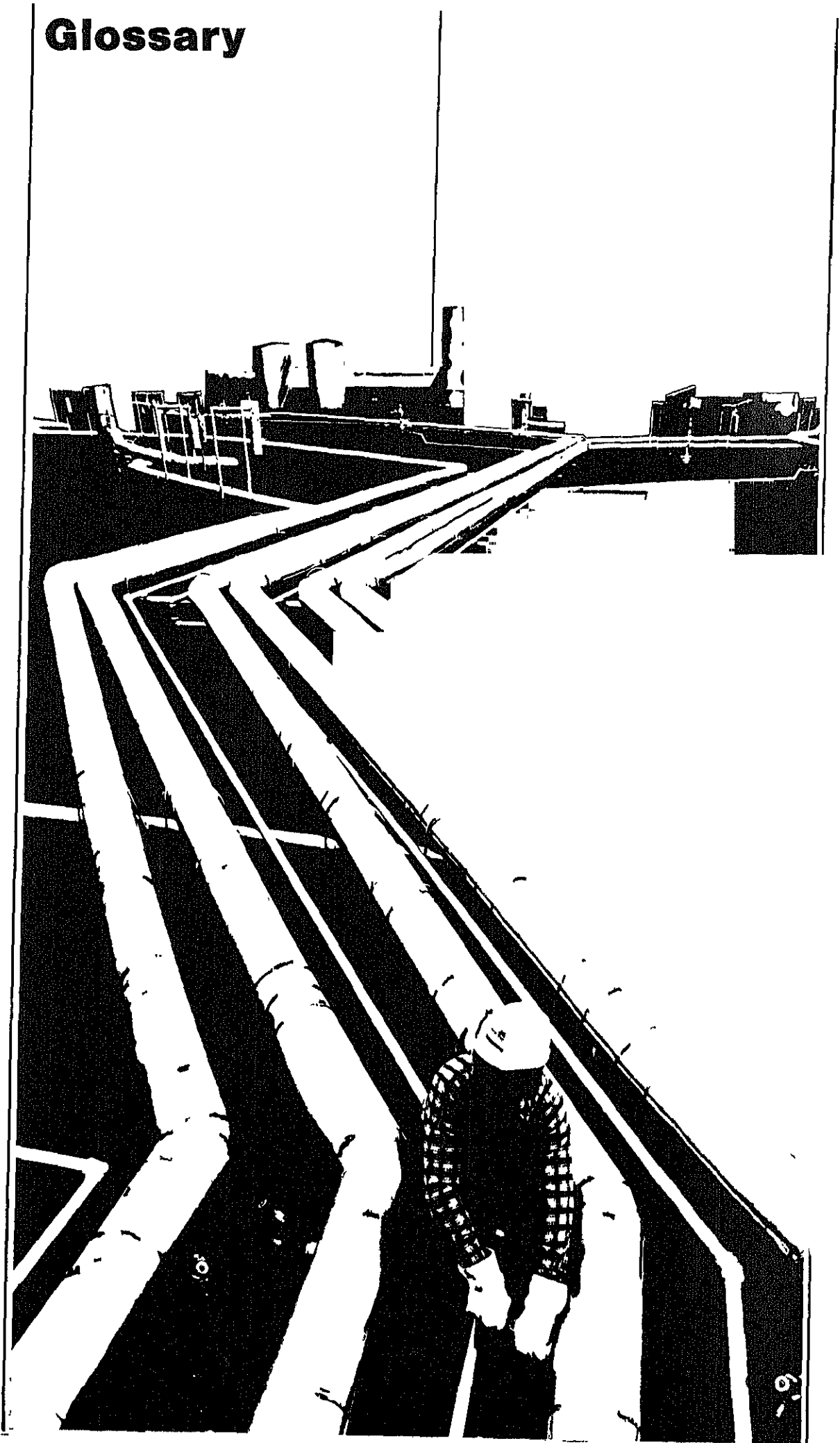
Source: See Explanatory Notes on Data Collection and Estimation.

Table 29. Imports of Residual Fuel Oil by Sulfur Content by State of Entry, February 1984
(Thousand Barrels)

State	Residual Fuel Oil			
	0.00 to 0.30%	0.31 to 1.00%	Greater Than 1.00%	Total
PAD District I	13,455	6,386	10,953	30,793
Connecticut	467	0	0	467
Delaware	238	0	0	238
Florida	80	335	847	1,262
Maine	206	0	1,538	1,745
Maryland	389	562	365	1,315
Massachusetts	1,123	530	1,490	3,144
New Hampshire	175	50	484	709
New Jersey	892	946	1,832	3,670
New York	8,718	2,905	2,548	14,171
North Carolina	215	0	283	498
Pennsylvania	514	659	465	1,638
South Carolina	151	0	355	506
Vermont	13	0	0	13
Virginia	273	400	745	1,418
PAD District II	130	59	7	195
Illinois	0	43	0	43
Michigan	126	15	0	141
Minnesota	0	0	2	2
North Dakota	4	0	5	9
PAD District III	625	0	0	625
Texas	625	0	0	625
PAD District IV	6	0	18	23
Montana	6	0	18	23
PAD District V	147	203	101	452
California	147	0	7	155
Hawaii	0	203	94	297
All PAD Districts	14,363	6,647	11,079	32,089

Note. Total may not equal sum of components due to independent rounding
Source: See Explanatory Notes on Data Collection and Estimation

Glossary



Definitions of Petroleum Products and Other Terms

Alcohol. The family name of a group of organic chemical compounds composed of carbon, hydrogen, and oxygen. The series of molecules vary in chain length and are composed of a hydrocarbon plus a hydroxyl group; $\text{CH}-(\text{CH})_n-\text{OH}$. Alcohol includes methanol and ethanol.

Alkylation. A refinery process for chemically combining isoparaffin with olefin hydrocarbons. The product, alkylate, has high octane value and is blended with motor and aviation gasoline to improve the antiknock value of the fuel.

API Gravity. An arbitrary scale expressing the gravity or density of liquid petroleum products. The measuring scale is calibrated in terms of degrees API; it may be calculated in terms of the following formula:

$$\text{Deg API} = \frac{141.5}{\text{sp gr } 60\text{F}/60\text{F}} - 131.5$$

Aromatics. Hydrocarbons characterized by unsaturated ring structures of carbon atoms. Commercial petroleum aromatics are benzene, toluene, and xylene.

Asphalt. A dark-brown-to-black cement-like material containing bitumens as the predominant constituents, obtained by petroleum processing. The definition includes crude asphalt as well as the following finished products: cements, fluxes, the asphalt content of emulsions (exclusive of water), and petroleum distillates blended with asphalt to make cutback asphalts. The conversion factor for asphalt is 5.5 barrels of 42 U.S. gallons per short ton.

ASTM. The acronym for the American Society for Testing and Materials.

Aviation Gasoline Blending Components. Finished components in the gasoline range which will be used for blending or compounding into finished aviation gasoline.

Aviation Gasoline (Finished). All special grades of gasoline for use in aviation reciprocating engines, as given in ASTM Specification D910 and Military Specification MIL-G5572. Excludes blending components which will be used in blending or compounding into finished aviation gasoline.

Barrel. A volumetric unit of measure for crude oil and petroleum products equivalent to 42 U.S. gallons. This measure is used in most statistical reports. Factors for converting petroleum coke, asphalt and wax to barrels are given in the definitions for these products.

Barrels Per Calendar Day. See *Operable Capacity*.

Barrels Per Stream Day. See *Operable Capacity*.

Bi-Metallic. A term used to describe a type of catalyst. A catalytic process utilizing a catalyst comprised of two metals (e.g. platinum, rhenium).

Butane. A normally gaseous straight-chain or branch-chain hydrocarbon. (C_4H_{10}). It is extracted from natural gas or refinery gas streams. It includes isobutane and normal butane and is covered by ASTM Specification D1835 and Gas Processors Association Specifications for commercial butane.

Isobutane. A normally gaseous branch-chain hydrocarbon, (C_4H_{10}). It is a colorless paraffinic gas that boils at a temperature of 10.9 degrees F. It is extracted from natural gas or refinery gas streams.

Normal Butane. A normally gaseous straight-chain hydrocarbon, (C_4H_{10}). It is a colorless paraffinic gas that boils at a temperature of 31.1 degrees F. It is extracted from natural gas or refinery gas streams.

Butylene. An olefinic hydrocarbon, (C_4H_8), recovered from refinery processes.

Catalytic Cracking. The refining process of breaking down the larger, heavier, and more complex hydrocarbon molecules into simpler and lighter molecules. Catalytic cracking is accomplished by the use of a catalytic agent and is an effective process for increasing the yield of gasoline from crude oil.

Catalytic Hydrocracking. A refining process for converting middle boiling or residual material to high-octane gasoline, reformer charge stock, jet fuel and/or high grade fuel oil. Hydrocracking is an efficient, relatively low temperature process using hydrogen and a catalyst.

Catalytic Hydrotreating. A process for treating petroleum fractions (e.g. distillate fuel oil and residual oil) and unfinished oils (e.g. naphthas, reformer feeds and heavy gas oils) in the presence of catalysts and substantial quantities of hydrogen to upgrade their quality.

Catalytic Reforming. The use of controlled heat and pressure with catalysts to effect the rearrangement of certain hydrocarbon molecules without altering their composition appreciably; the conversion of low-octane gasoline fractions into higher octane stocks suitable for blending into finished gasoline; also the conversion of naphthas to obtain a more volatile product of higher octane number.

Conventional. A term used to describe a type of catalyst. A catalytic process utilizing a catalyst comprised of a metal and a non-metal (e.g. platinum, alumina).

Coal. A generic term applied to carbonaceous rocks that were formed by the partial or complete decomposition of vegetation. These stratified carbonaceous rocks are either solid or brittle and are highly combustible. In-

cludes lignite, bituminous coal, and anthracite which conform to ASTM Specification D388.

Crude Distillation. The refining process of separating crude oil components by heating and subsequent condensing of the fractions by cooling.

Crude Oil (including Lease Condensate). A mixture of hydrocarbons that existed in liquid phase in underground reservoirs and remains liquid at atmospheric pressure after passing through surface separating facilities. Included are lease condensate and liquid hydrocarbons produced from tar sands, gilsonite and oil shale. Drip gases are also included, but topped crude oil (residual) oil and other unfinished oils are excluded. Liquids produced at natural gas processing plants and mixed with crude oil are likewise excluded where identifiable. Crude oil is considered as either domestic or foreign according to the following:

Domestic. Crude oil produced in the United States or from its "outer continental shelf" as defined in 43 U.S.C. 1331.

Foreign. Crude oil produced outside the United States. Imported Athabasca hydrocarbons are included.

Delayed Coking. A process to produce low Conradson carbon gas for catalytic cracking feedstock and for gasoline.

Distillate Fuel Oil. A general classification for one of the petroleum fractions produced in conventional distillation operations. It is used primarily for space heating, on-and-off-highway diesel engine fuel (including railroad engine fuel and fuel for agricultural machinery), and electric power generation. Included are products known as No. 1, No. 2, and No. 4 fuel oils; No. 1, No. 2, and No. 4 diesel fuels.

No. 1 Fuel Oil. A light distillate fuel oil intended for use in vaporizing pot-type burners. ASTM Specification D396 specifies for this grade maximum distillation temperatures of 400 degrees F. at the 10-percent point and 550 degrees F. at the 90-percent point, and kinematic viscosities between 1.4 and 2.2 centistokes at 100 degrees F.

No. 2 Fuel Oil. A distillate fuel oil for use in atomizing-type burners for domestic heating or for moderate capacity commercial-industrial burner units. ASTM Specification D396 specifies for this grade distillation temperatures at the 90-percent point between 540 degrees and 640 degrees F., and kinematic viscosities between 2.0 and 3.6 centistokes at 100 degrees F.

No. 1 and No. 2 Diesel Fuel Oils. Distillate fuel oils used in compression-ignition engines, as given by ASTM Specification D975:

No. 1-D. A volatile distillate fuel oil with a boiling range between 300-575 degrees F. and used in high-speed diesel engines generally operated under variations in speed and load. Includes type C-B diesel fuel used for city buses and similar operations. Properties are defined in ASTM Specification D975.

No. 2-D. A gas oil type distillate of lower volatility with distillation temperatures at the 90-percent point between 540-640 degrees F. for use in high-speed diesel engines generally operated under uniform speed and load conditions. Includes Type R-R diesel fuel used for railroad locomotive engines, and Type T-T for diesel-engine trucks. Properties are defined in ASTM Specification D975.

No. 4 Fuel Oil. A fuel oil for commercial burner installations not equipped with preheating facilities. It is used extensively in industrial plants. This grade is a blend of distillate fuel oil and residual fuel oil stocks that conforms to ASTM Specification D396 or Federal Specification VV-F-815C; its kinematic viscosity is between 5.8 and 26.4 centistokes at 100 degrees F. Also included is No. 4-D, a fuel oil for low- and medium-speed diesel engines that conforms to ASTM Specification D975.

Eastern Hemisphere. That half of the earth east of the Atlantic Ocean which includes Europe, Asia, Africa and Australia. The Hawaiian Foreign Trade Zone is in this hemisphere.

Electric Energy (Purchased). Electricity purchased for refinery operations that is not produced within the refinery complex.

Ethane. A normally gaseous straight-chain hydrocarbon, (C₂H₆). It is a colorless paraffinic gas that boils at a temperature of -127.48 degrees F. It is extracted from natural gas and refinery gas streams.

Ethylene. An olefinic hydrocarbon, (C₂H₄), recovered from refinery processes or petrochemical processes.

Field Production. Represents crude oil production on leases, natural gas liquids production at natural gas processing plants, and new supply of other hydrocarbons and alcohol.

Fluid Coking. A thermal process utilizing the fluidized-solids technique for continuous conversion of heavy, low-grade oils into lighter products.

Gasohol. See **Motor Gasoline (Finished).**

Gas Oil. A liquid petroleum distillate having a viscosity intermediate between that of kerosene and lubricating oil. Derives its name from having originally been used in the manufacture of illuminating gas. Now supplies distillate-type fuel oils and diesel fuel, also cracked to produce gasoline.

Gasoline Blending Components. Finished components in the gasoline range which will be used for blending or compounding into finished aviation or motor gasoline.

Idle Capacity. The component of operable capacity that is not in operation and not under active repairs, but capable of being placed in operation within 30 days; and capacity not in operation but under active repairs that can be completed within 90 days.

Imported Crude Oil Burned As Fuel. The amount of foreign crude oil burned as a fuel oil, usually as residual fuel oil, without being processed as such. Imported

crude oil burned as fuel includes lease condensate and liquid hydrocarbons produced from tar sand oil, gilsonite, and shale oil.

Isobutane. See *Butane*.

Isomerization. A refining process which alters the fundamental arrangement of atoms in the molecule. Used to convert normal butane into isobutane, an alkylation process feedstock, and normal pentane and hexane into isopentane and isohexane, high-octane gasoline components.

Kerosene. A petroleum distillate that boils at a temperature between 300-550 degrees F., that has a flash point higher than 100 degrees F. by ASTM Method D56, that has a gravity range from 40-46 degrees API, and that has a burning point in the range of 150-175 degrees F. Included are the two classifications recognized by ASTM D3699: No. 1-K and No. 2-K, and all grades of kerosene called range or stove oil which have properties similar to No. 1 fuel oil, but with a gravity of about 43 degrees API and a maximum end-point of 625 degrees F. Kerosene is used in space heaters, cook stoves, and water heaters and is suitable for use as an illuminant when burned in wick lamps.

Kerosene-Type Jet Fuel. A quality kerosene product with an average gravity of 40.7 degrees API, and a 10 percent distillation temperature of 400 degrees F. It is covered by ASTM Specification D1655 and Military Specification MIL-T-5624L (Grades JP-5 and JP-8). A relatively low-freezing point distillate of the kerosene type; it is used primarily for commercial turbojet and turboprop aircraft engines.

Lease Condensate. A natural gas liquid recovered from gas well gas (associated and nonassociated) in lease separators or natural gas field facilities. Lease condensate consists primarily of pentanes and heavier hydrocarbons.

Liquefied Petroleum Gases (LPG). Ethane, Ethylene, propane, propylene, normal butane, butylene, and isobutane produced at refineries or natural gas processing plants, including plants that fractionate raw natural gas plant liquids.

Liquefied Refinery Gases (LRG). Liquefied petroleum gases fractionated from refinery or still gases. Through compression and/ or refrigeration they are retained in the liquid state. The reported categories are ethane/ethylene, propane/propylene, normal butane/butylene, and isobutane. Excludes still gas used for chemical or rubber manufacture which is reported as a petrochemical feedstock and also excludes liquefied petroleum gases intended for blending into gasoline which are reported as gasoline blending components. Liquefied refinery gases are reported for use as petrochemical feedstock or other uses.

Lubricating Oils. A substance used to reduce friction between bearing surfaces. Petroleum lubricants may be produced either from distillates or residues. Other substances may be added to impart or improve certain required properties. "Lubricants" includes all grades of lubricating oils from spindle oil to cylinder oil and those used in greases. The three categories include:

Bright Stock. A refined, high viscosity lubricating oil base stock that is usually made from a residuum by a treatment such as deasphalting, acid treatment, or solvent extraction.

Neutral. A distillate lubricating oil base stock with a viscosity that is usually not above 550 Saybolt Universal Seconds (SUS) at 100 degrees F. It is prepared by a treatment such as hydrofining, acid treatment, or solvent extraction.

Other. A lubricating oil base stock used in finished lubricating oils and greases, including black, coastal, and red oils.

Middle Distillates. A general classification that includes distillate fuel oil and kerosene.

Miscellaneous Products. Includes all finished products not classified elsewhere, e.g., petrolatum, absorption oils, ram-jet fuel, petroleum rocket fuels, synthetic natural gas feedstocks, speciality oils and medicinal oils.

Motor Gasoline Blending Components. Finished components in the gasoline range which will be used for blending or compounding into finished motor gasoline. Pool gasoline is included in this category.

Motor Gasoline (Finished). A complex mixture of relatively volatile hydrocarbons, with or without small quantities of additives, that have been blended to form a fuel suitable for use in spark-ignition engines. Specifications for motor gasoline, as given in ASTM Specification D439 or Federal Specification VV-G-1690B, include a boiling range of 122-158 degrees F. at the 10-percent point to 365-374 degrees F. at the 90-percent point and a Reid vapor pressure range from 9 to 15 psi. "Motor gasoline" includes finished leaded gasoline, finished unleaded gasoline, and gasohol. Blendstock is excluded until blending has been completed. Alcohol that is to be used in the blending of gasohol is also excluded.

Finished Leaded Gasoline. Contains more than 0.05 gram of lead per gallon or more than 0.005 gram of phosphorus per gallon. The actual lead content of any given gallon, however, may vary as a function of the size of the producer and company according to specific Environmental Protection Agency waiver provisions. Premium and regular grades are included, depending on the octane rating. Includes leaded gasohol. Blendstock is excluded until blending has been completed. Alcohol that is to be used in the blending of gasohol is also excluded.

Finished Unleaded Gasoline. Contains not more than 0.05 gram of lead per gallon and not more than 0.005 gram of phosphorus per gallon. Premium and regular grades are included, depending on the octane rating. Includes unleaded gasohol. Blend stock is excluded until blending has been completed. Alcohol that is to be used in the blending of gasohol is also excluded.

Gasohol. A blend of finished motor gasoline (leaded or unleaded) and alcohol (generally ethanol but sometimes methanol) in which 10 percent or more of the product is alcohol.

Naphtha-Type Jet Fuel. A fuel in the heavy naphtha boiling range with an average gravity of 52.8 degrees API and 20 to 90 percent distillation temperatures of 290 degrees to 470 degrees F, meeting Military Specification MIL-T-5624L (Grade JP-4). JP-4 is used for turbojet and turboprop aircraft engines, primarily by the military. Excludes ram-jet and petroleum rocket fuels.

Natural Gas. A mixture of hydrocarbons and small quantities of various nonhydrocarbons existing in the gaseous phase or in solution with crude oil in underground reservoirs.

Natural Gas Field Facility. A field facility designed to process natural gas produced from more than one lease for the purpose of recovering condensate from a stream of natural gas; however, some field facilities are designed to recover propane, normal butane, pentanes plus, etc., and to control the quality of natural gas to be marketed.

Natural Gas Plant Liquids. Natural gas liquids recovered from natural gas in gas processing plants, and in some situations, from natural gas field facilities. Natural gas liquids extracted by fractionators are also included. These liquids are defined according to the published specification of the Gas Processors Association and the American Society for Testing and Materials and are classified as follows: Ethane, propane, normal butane, isobutane, pentanes plus, and other products from natural gas processing plants (i.e. products meeting the standards for finished petroleum products produced at natural gas processing plants, such as finished motor gasoline, finished aviation gasoline, special naphthas, kerosene, distillate fuel oil, and miscellaneous products).

Natural Gasoline and Isopentane. A mixture of hydrocarbons, mostly pentanes and heavier, extracted from natural gas, that meets vapor pressure, end-point, and other specifications for natural gasoline set by the Gas Processors Association. Includes isopentane which is a saturated branch-chain hydrocarbon, (C₅H₁₂), obtained by fractionation of natural gasoline or isomerization of normal pentane.

Normal Butane. See *Butane*.

OPEC. The acronym for the Organization of Petroleum Exporting Countries, oil-producing and exporting countries that have organized for the purpose of negotiating with oil companies on matters of oil production, prices and future concession rights. Current members are Algeria, Ecuador, Gabon, Indonesia, Iran, Iraq, Kuwait, Libya, Nigeria, Qatar, Saudi Arabia, United Arab Emirates, and Venezuela.

Operable Capacity. The amount of capacity that, at the beginning of the period, is in operation; not in operation, and not under active repairs but capable of being placed in operation within 30 days; or not in operation but under active repairs that can be completed within 90 days. Operable capacity is the sum of the operating and idle capacity and is measured in barrels per calendar day or barrels per stream day.

Barrels Per Calendar Day. The maximum number of barrels of input that can be processed in an atmos-

pheric distillation facility during a twenty-four hour period after making allowances for the following limitations:

The capability of downstream facilities to absorb the output of crude oil processing facilities of a given refinery. No reduction is made when a planned distribution of intermediate streams through other than downstream facilities is part of a refinery's normal operation.

The types and grades of inputs to be processed.

The types and grades of products expected to be manufactured.

The environmental constraints associated with refinery operations.

The reduction of capacity for scheduled downtime such as routine inspection, mechanical problems, maintenance, repairs and turnaround.

The reduction of capacity for unscheduled downtime such as mechanical problems, repairs, and slowdowns.

Barrels Per Stream Day. The amount a unit can process running at full capacity under optimal crude and product slate conditions.

Operating Capacity. The component of operable capacity that is in operation at the beginning of the period.

Other Hydrocarbons. Materials received by a refinery and consumed as raw materials. Includes hydrogen, coal tar derivatives, gilsonite, and natural gas received by the refinery for reforming into hydrogen. Natural gas to be used as fuel is excluded.

Pentanes Plus. A mixture of hydrocarbons, mostly pentanes and heavier, extracted from natural gas. Includes isopentane, natural gasoline and plant condensate.

Petrochemical Feedstock Use. Chemical feedstocks derived from petroleum, principally for the manufacture of chemicals, synthetic rubber and a variety of plastics. The categories reported are "Naphtha-Less than 400 degrees F. end-point" and "Other oils over 400 degrees F. end point."

Naphtha-Less Than 400 Degrees F. End-Point. A naphtha with an end point of less than 400 degrees F. that is intended for use as a petrochemical feedstock.

Other Oils-Over 400 Degrees F. End-Point. Oils with an end point over 400 degrees F. that is intended for use as a petrochemical feedstock.

Petroleum Coke. A residue, the final product of the condensation process in cracking. This product is reported as marketable coke or catalyst coke. The conversion factor is 5 barrels of 42 U.S. gallons per short ton.

Marketable Coke. Those grades of coke produced in delayed or fluid cokers which may be recovered as relatively pure carbon. This "green" coke may be sold as is or further purified by calcining.

Catalyst Coke. In many catalytic operations (i.e., catalytic cracking) carbon is deposited on the catalyst thus, deactivating the catalyst. The catalyst is reactivated by burning off the carbon, which is used as a fuel in the refinery process. This carbon or coke is not recoverable in a concentrated form.

Petroleum Products. Petroleum products are obtained from the processing of crude oil (including lease condensate), natural gas and other hydrocarbon compounds. Petroleum products include unfinished oils, liquefied petroleum gases, pentanes plus, aviation gasoline, motor gasoline, naphtha-type jet fuel, kerosene-type jet fuel, kerosene, distillate fuel oil, residual fuel oil, naphtha less than 400 F. end-point, other oils-over 400 F. end-point, special naphthas, lubricants, waxes, petroleum coke, asphalt, road oil, still gas, and miscellaneous products.

Petroleum Refinery. An installation that manufactures finished petroleum products from crude oil, unfinished oils, natural gas liquids, other hydrocarbons, and alcohol.

Plant Condensate. One of the natural gas liquids, mostly pentanes and heavier hydrocarbons, recovered and separated as liquids at gas inlet separators or scrubbers in processing plants.

Primary Stocks. Stocks of crude oil or petroleum products held in storage at (or in) leases, refineries, natural gas processing plants, pipelines, tank farms, and bulk terminals that can store at least 50,000 barrels of petroleum products or that can receive petroleum products by tanker, barge, or pipeline. Crude oil that is in transit from Alaska, or that is stored on Federal leases or in the Strategic Petroleum Reserve is included. Primary Stocks excludes stocks of foreign origin that are held in bonded warehouse storage.

Propane. A normally gaseous straight-chain hydrocarbon, (C₃H₈). It is a colorless paraffinic gas that boils at a temperature of -43.67 degrees F. It is extracted from natural gas or refinery gas streams. It includes all products covered by Gas Processors Association Specifications for commercial propane and HD-5 propane and ASTM Specification D1835.

Propylene. An olefinic hydrocarbon, (C₃H₆), recovered from refinery processes or petrochemical processes.

Residual Fuel Oil. The topped crude of refinery operations which includes No. 5 and No. 6 fuel oils as defined in ASTM Specification D396 and Federal Specification VV-F-815C, Navy Special fuel oil as defined in Military Specification MIL-F-859E including Amendment 2 (NATO Symbol F-77), and Bunker C fuel oil. Residual fuel oil is used for the production of electric power, space heating, vessel bunkering, and various industrial purposes. Imports of residual fuel oil include "Imported Crude Oil Burned as Fuel."

Road Oil. Any heavy petroleum oil, including residual asphaltic oil used as a dust palliative and surface treatment on roads and highways. It is generally produced in six grades from 0, the most liquid, to 5, the most viscous.

Special Naphthas. All finished products within the gasoline range that are used as paint thinners, cleaners, or solvents. These products are refined to a specified flash point and have a boiling range of 90 degrees to 220 degrees F. "Special naphthas" includes all commercial hexane and cleaning solvents conforming to ASTM Specification D1836 and D484, respectively. Naphthas to be blended or marketed as motor gasoline or aviation gasoline or that are to be used as petrochemical and synthetic natural gas (SNG) feedstocks are excluded.

Steam (Purchased). Steam, purchased for use by a refinery, that was not generated from within the refinery complex.

Still Gas (Refinery Gas). Any form or mixture of gas produced in refineries by distillation, cracking, reforming, and other processes. The principal constituents are methane, ethane, ethylene, normal butane, butylene, propane, propylene, etc. Still gas is reported for petrochemical feedstock use and/or refinery fuel use.

Petrochemical Feedstock Use. Includes all refinery streams which are used by chemical or rubber manufacturing operations for further processing, less the amount of such streams returned to the source refinery. Finished petrochemical products are not included. For example, polyethylene, butadiene, etc. are considered petrochemical products; therefore, only their feedstock equivalents are included.

Fuel Use. All other still gas.

Strategic Petroleum Reserve (SPR). Petroleum stocks maintained by the Federal Government for use during periods of major supply interruption.

Thermal Cracking. A refining process in which heat and pressure are used to break down, rearrange, or combine hydrocarbon molecules. Thermal cracking is used to increase the yield of gasoline obtainable from crude oil.

Unfinished Oils. Includes all oils requiring further processing, except those requiring only mechanical blending.

Unfractionated Streams. Mixtures of unsegregated natural gas liquid components excluding those in plant condensate. This product is extracted from natural gas.

Vacuum Distillation. Distillation under reduced pressure (less the atmospheric) which lowers the boiling temperature of the liquid being distilled. This technique with its relatively low temperatures prevents cracking or decomposition of the charge stock.

Visbreaking. A thermal cracking process in which heavy vacuum-still bottoms produced on the primary distillation unit are cracked to increase production of distillate products.

Wax. A solid or semi-solid material derived from petroleum distillates or residues by such treatments as chilling, precipitating with a solvent, or de-oiling. It is light-colored, more-or-less translucent crystalline mass, slightly greasy to the touch, consisting of a mixture of solid hydrocarbons in which the paraffin series pre-

dominates. Includes all marketable wax whether crude scale or fully refined. The three grades included are microcrystalline, crystalline-fully refined, and crystalline-other. The conversion factor is 280 pounds per 42-U.S. gallon barrel.

Microcrystalline Wax. Wax extracted from certain petroleum residues having a finer and less apparent crystalline structure than paraffin wax and having the following physical characteristics:

Penetration at 77 degrees F. (D1321)-60 maximum. Viscosity at 210 degrees F. in Saybolt Universal Seconds (SUS). (D88)-60 SUS (10.22 centistokes) minimum to 150 SUS (31.8 centistokes) maximum. Oil content (D721)-5 percent minimum.

Crystalline-Fully Refined Wax. A light-colored paraffin wax having the following characteristics:

Viscosity at 210 degrees F. (D88)-59.9 SUS (10.18 centistokes) maximum. Oil Content (D721)-0.5 percent maximum. Other +20 color, Saybolt minimum.

Crystalline-Other Wax. A paraffin wax having the following characteristics:

Viscosity at 210 degrees F. (D88)-59.9 SUS (10.18 centistokes) maximum. Oil Content (D721)-0.51 percent minimum to 15 percent maximum.

Western Hemisphere. That half of the earth that includes North and South America and adjacent islands.

Bureau of Mines Petroleum Refining Districts and PAD Districts

The following are the Bureau of Mines petroleum refining districts which make up the PAD districts:

PAD District I

East Coast: District of Columbia and the States of Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New Jersey, Delaware, Maryland, Virginia, North Carolina, South Carolina, Georgia, Florida, and the following counties of the State of New York: Cayuga, Tompkins, Chemung and all counties east and north thereof. Also the following counties in the State of Pennsylvania: Bradford, Sullivan, Columbia, Montour, Northumberland, Dauphin, York, and all counties east thereof.

Appalachian #1: The State of West Virginia and those parts of the States of Pennsylvania and New York not included in the East Coast District.

PAD District II

Appalachian #2: The following counties of the State of Ohio: Erie, Huron, Crawford, Marion, Delaware, Franklin, Pickaway, Ross, Pike, Scioto, and all counties east thereof.

Indiana—Illinois—Kentucky: The States of Indiana, Illinois, Kentucky, Tennessee, Michigan, and that part of the State of Ohio not included in the Appalachian District.

Minnesota—Wisconsin—North and South Dakota: The States of Minnesota, Wisconsin, North Dakota, and South Dakota.

Oklahoma—Kansas—Missouri: The States of Oklahoma, Kansas, Missouri, Nebraska, and Iowa.

PAD District III

Texas Inland: The State of Texas except the Texas Gulf Coast District.

Texas Gulf Coast: The following counties of the State of Texas: Newton, Orange, Jefferson, Jasper, Tyler, Hardin, Liberty, Chambers, Polk, San Jacinto, Montgomery, Harris, Galveston, Waller, Fort Bend, Brazoria, Wharton, Matagorda, Jackson, Victoria, Calhoun, Refugio, Aransas, San Patricio, Nueces, Kleberg, Kenedy, Willacy, and Cameron.

Louisiana Gulf Coast: The following Parishes of the State of Louisiana: Vernon, Rapides, Avoyelles, Pointe Coupee, West Feliciana, East Feliciana, Saint Helena, Tangipahoa, Washington, and all Parishes south thereof. Also the following counties of the State of Mississippi: Pearl River, Stone, George, Hancock, Harrison, and Jackson. Also the following counties of the State of Alabama: Mobile and Baldwin.

North Louisiana—Arkansas: The State of Arkansas and those parts of the States of Louisiana, Mississippi, and Alabama not included in the Louisiana Gulf Coast District.

New Mexico: The State of New Mexico.

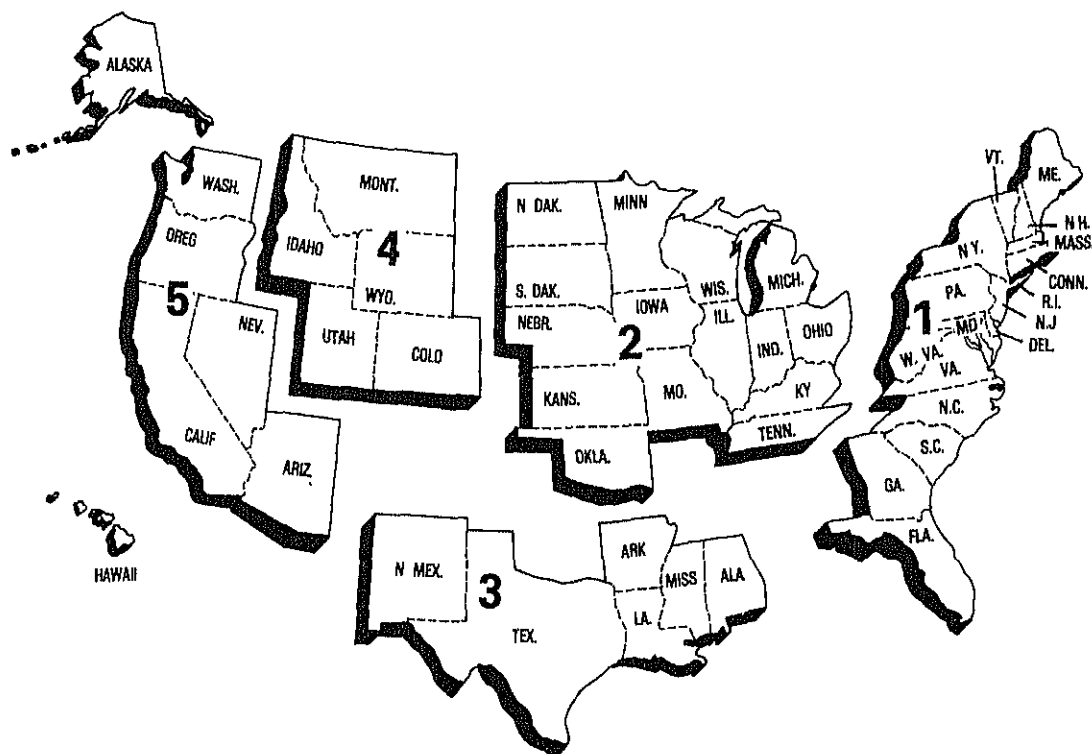
PAD District IV

Rocky Mountain: The States of Montana, Idaho, Wyoming, Utah, and Colorado.

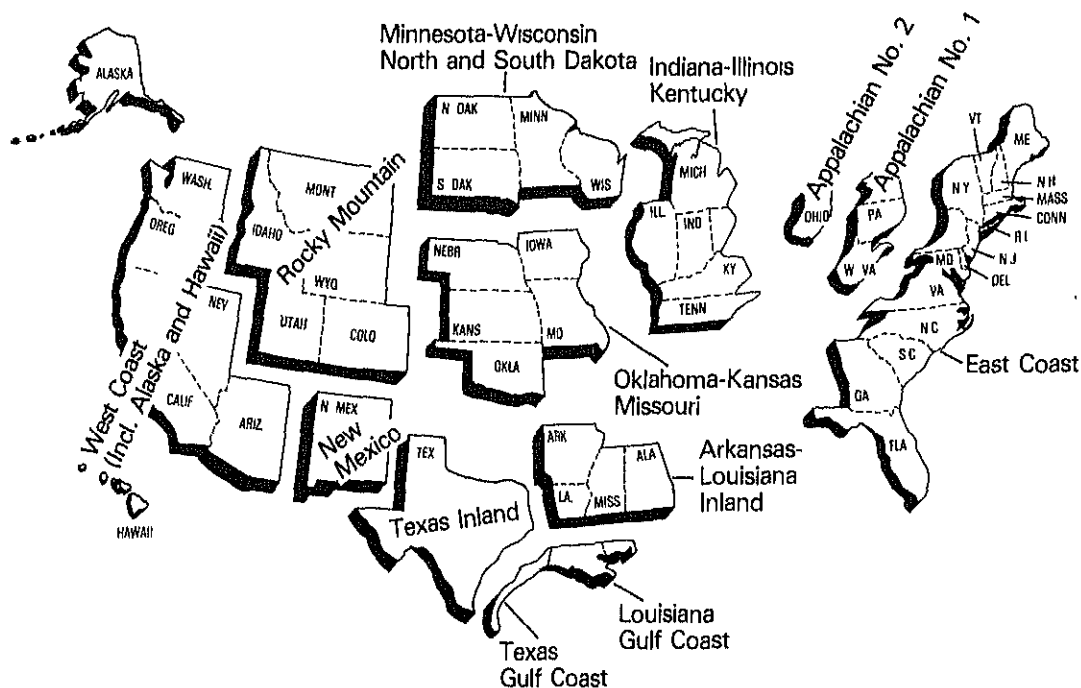
PAD District V

West Coast: The States of Washington, Oregon, California, Nevada, Arizona, Alaska, and Hawaii.

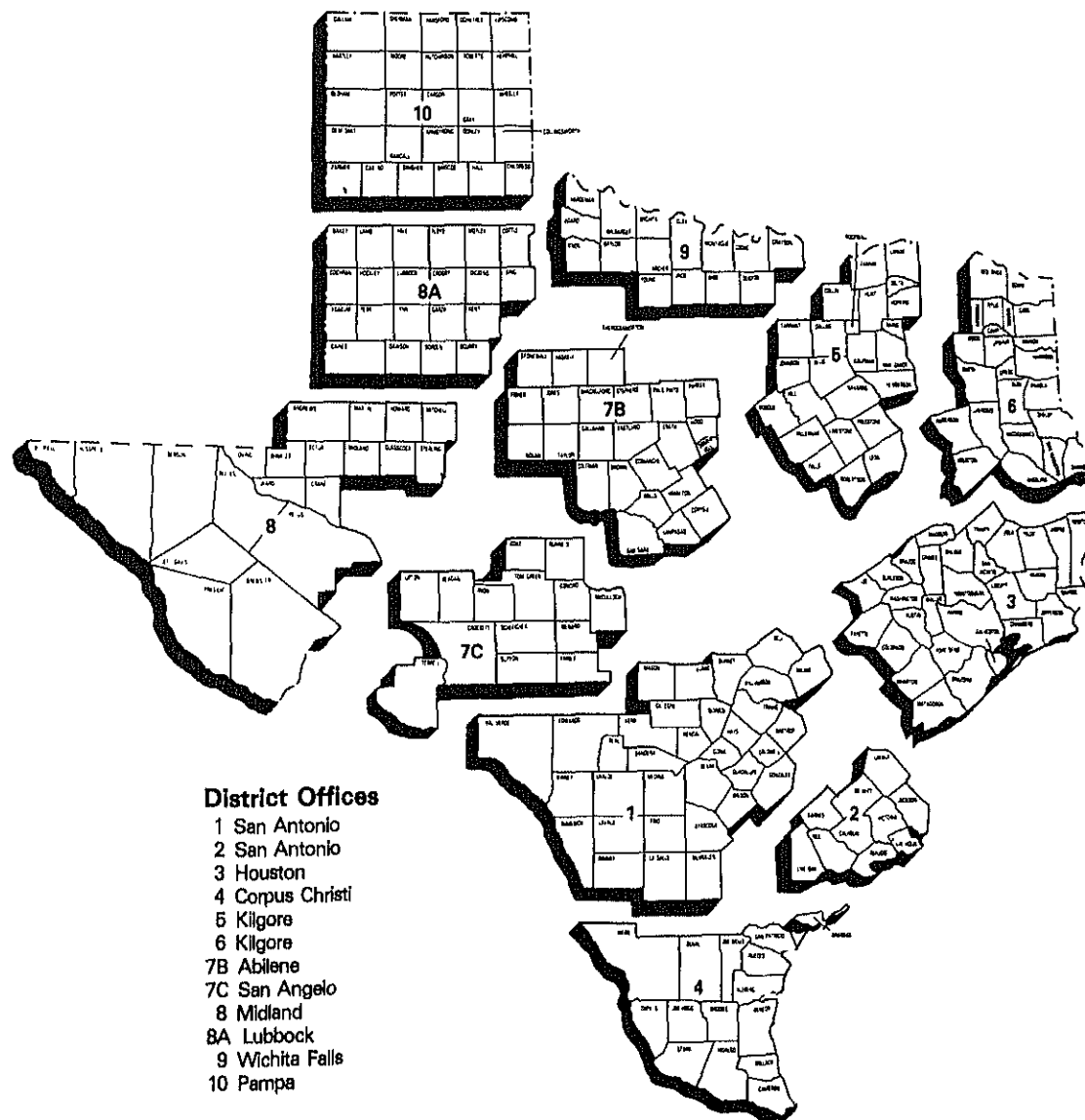
Petroleum Administration for Defense (PAD) Districts



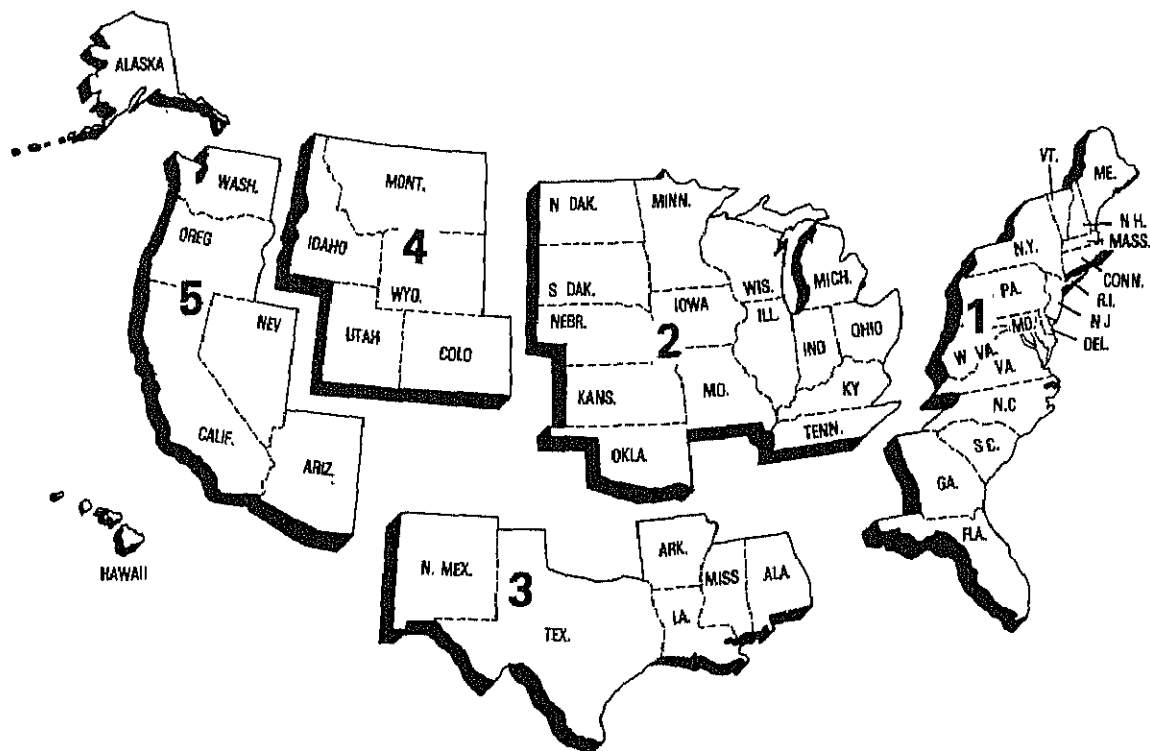
Bureau of Mines Refining Districts



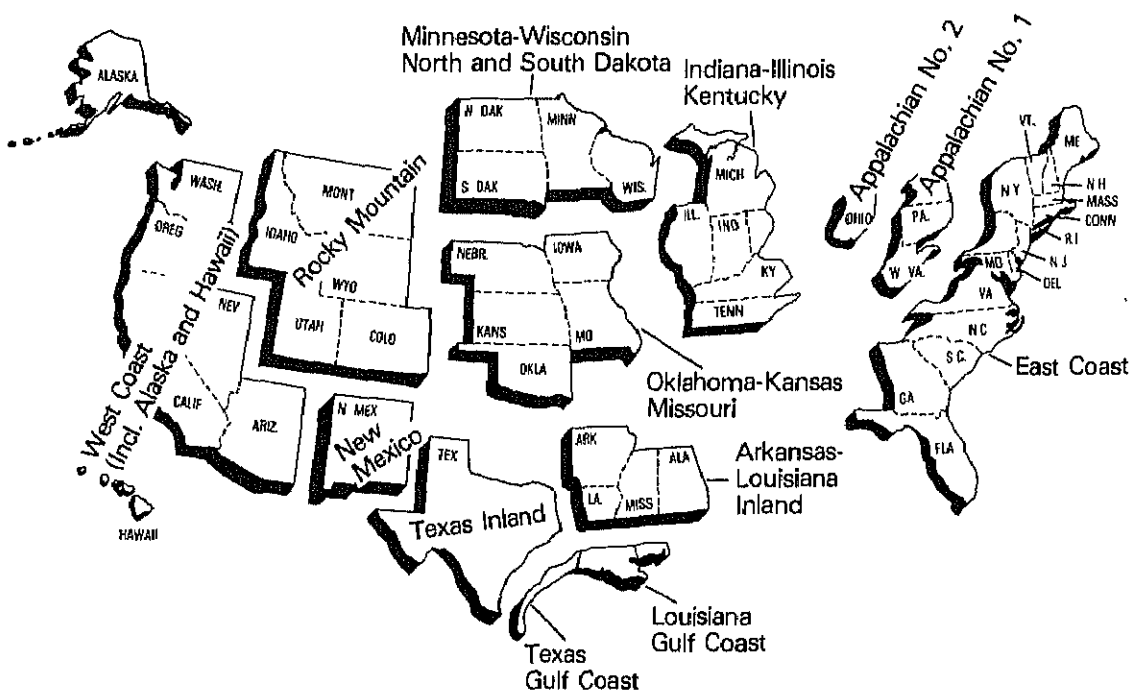
District Map Oil and Gas Division Railroad Commission of Texas



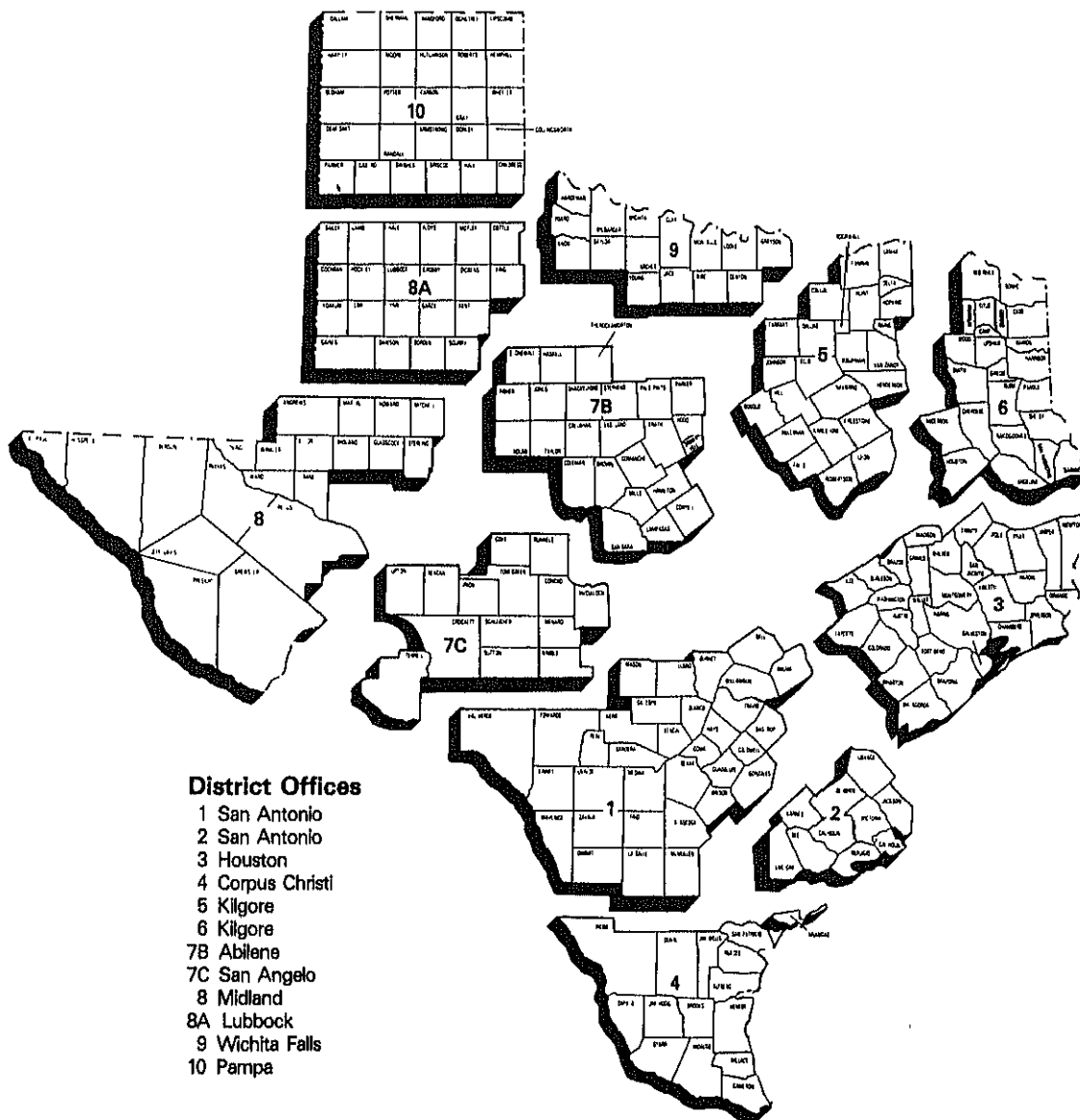
Petroleum Administration for Defense (PAD) Districts



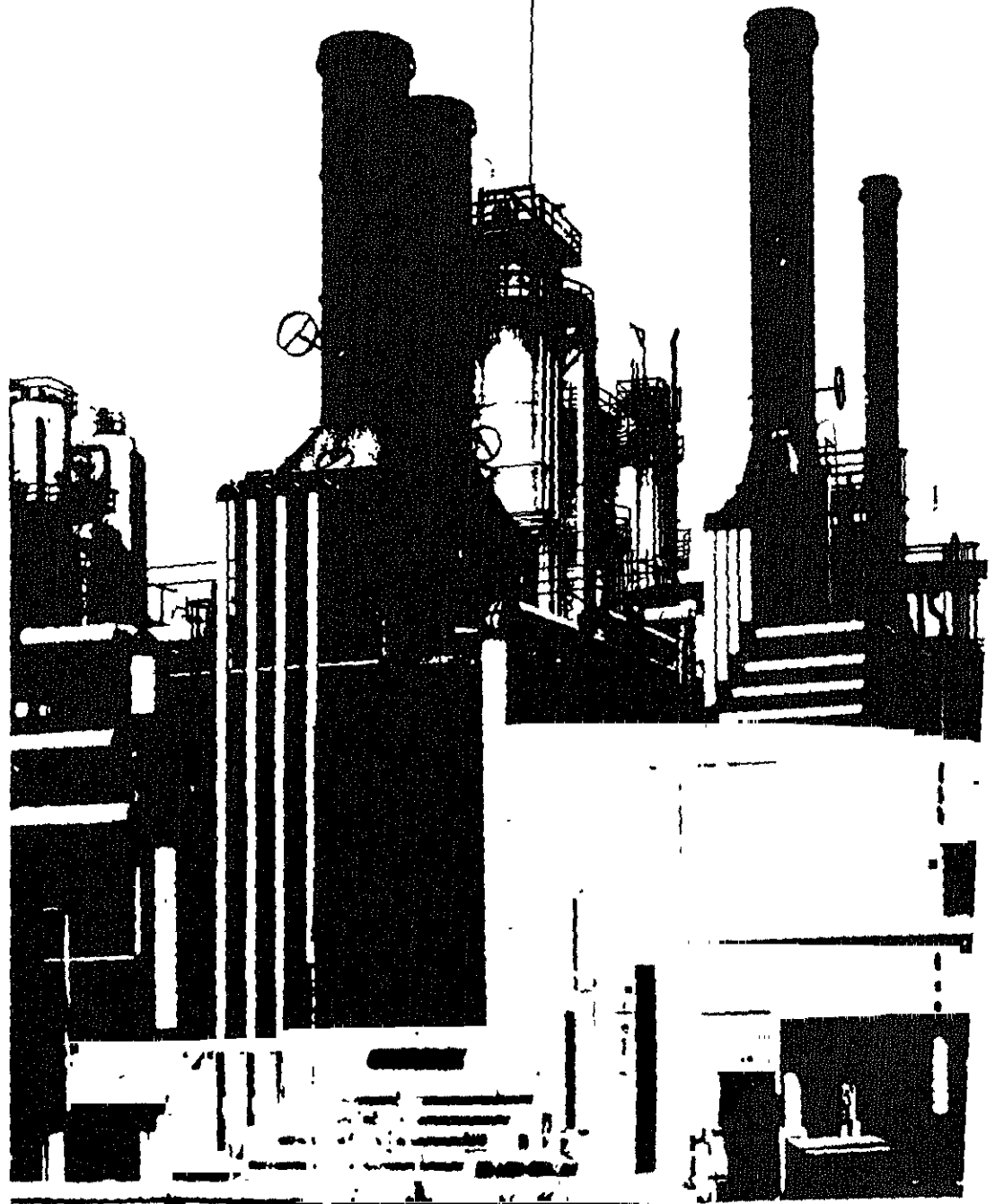
Bureau of Mines Refining Districts



District Map Oil and Gas Division Railroad Commission of Texas



Explanatory Notes



Explanatory Notes

Note 1: Data Collection Methodology

Background

Beginning in January 1983, the Energy Information Administration (EIA) unified its petroleum supply data collection activities into the Petroleum Supply Reporting System (PSRS). The PSRS represents a family of data collection survey forms, data processing systems and publication systems that have been consolidated to achieve comparability and consistency throughout. The primary focus of the consolidation has been to revise the weekly and monthly survey reporting forms to assure consistency in form layout, preparation instructions, and definitions. As a result, a new set of survey forms were implemented in January 1983. The following are the new form numbers and their corresponding predecessor forms:

New Form Number	Name	Old Form Number
EIA-800	Weekly Refinery Report	EIA-161
EIA-801	Weekly Bulk Terminal Report	EIA-162
EIA-802	Weekly Product Pipeline Report	EIA-163
EIA-803	Weekly Crude Oil Stocks Report	EIA-164
EIA-804	Weekly Imports Report	EIA-165
EIA-805	Weekly Shipments from Puerto Rico to the United States Report	—
EIA-810	Monthly Refinery Report	EIA-87
EIA-811	Monthly Bulk Terminal Report	EIA-88
EIA-812	Monthly Product Pipeline Report	EIA-89
EIA-813	Monthly Crude Oil Report	EIA-90
ERA-60	Monthly Imports Report	ERA-60
EIA-815	Monthly Shipments from Puerto Rico to the United States Report	FEA-P133-M-0
EIA-816	Monthly Natural Gas Liquids Report	EIA-64
EIA-817	Monthly Tanker and Barge Movement Report	EIA-170

Forms EIA-800 through 805 comprise the Weekly Petroleum Supply Reporting System (WPSRS). This system is designed to collect basic refinery operations and product stock data for major products on a weekly basis. Data from the WPSRS are published in the *Weekly Petroleum Status Report (WPSR)* and are also used to calculate the preliminary statistics in the "Summary Statistics" section of the *Petroleum Supply Monthly*

(PSM). A description of the WPSRS survey forms follows in Note 1.1.

Forms EIA-810-813, 815-817 and ERA-60 comprise the Monthly Petroleum Supply Reporting System (MPSRS). These surveys collect detailed refinery operations data, refinery, bulk terminal and pipeline stocks data, crude oil and petroleum product imports data and movements of petroleum products and crude oil between PAD Districts data. These surveys are the primary source of data for the "Summary Statistics" and "Detailed Statistics" sections of the PSM. A description of MPSRS survey forms follows in Note 1.2.

Data are also obtained in magnetic tape form from the Bureau of the Census on a monthly basis. These tapes contain aggregated import and export statistics that are used in the preparation of the PSM. A description of the Census data follows in Note 1.3.

Note 1.1: Weekly Petroleum Supply Reporting System (WPSRS)

Background

The EIA first began publishing weekly petroleum supply statistics in April 1979 in response to the Iranian oil crisis. Initially, the published data were taken from the American Petroleum Institute (API) *Weekly Statistical Bulletin*. However, in January 1980 the EIA began to publish weekly statistics from its own surveys, with the exception of imports statistics which the EIA did not begin collecting until June 1980.

The weekly surveys collect data comparable to those collected on a monthly basis. Selected petroleum companies report weekly data to the EIA on crude oil and petroleum product stocks, refinery inputs and production, and crude oil and petroleum product imports. On Form EIA-800 through EIA-803, companies report data on a custody basis. On the Form EIA-804, the importer of record reports each shipment entering the United States. On Form EIA-805, a company shipping unfinished oils and finished petroleum products into the United States from Puerto Rico reports each shipment. Current weekly data and the most recent monthly data are used to estimate the totals that are published in the *Weekly Petroleum Status Report*.

Sample Frame

The sample of companies that report weekly is selected from the universe of companies that report on the comparable monthly surveys. Sampled companies report data only for facilities in the 50 States and District of Columbia.

The sample for each survey is taken from the following universe:

EIA-800: Based on the EIA-810 universe, which includes all petroleum refineries in the United States and

its territories, industrial facilities that have crude oil distillation capacity and produce some refined petroleum products, and plants that produce finished motor gasoline through mechanical blending. The selected sample size is 215.

EIA-801: Based on the EIA-811 universe, which includes all bulk terminal facilities in the United States and its territories that have either a total bulk storage capacity of 50,000 barrels or more, or that receive petroleum products by tanker, barge, or pipeline. The selected sample size is 93.

EIA-802: Based on the EIA-812 universe, which includes all petroleum product pipeline companies in the United States and its territories that transport refined petroleum products, including interstate, intrastate and intracompany pipeline movements. Pipeline companies that transport only natural gas liquids are not included in the EIA-802 frame. Only those pipeline companies that transport products covered in the weekly survey are included. The selected sample size is 65.

EIA-803: Based on the EIA-813 universe, which consists of all companies which carry or store crude oil of 1,000 barrels or more in the 50 States, and the District of Columbia. Included are gathering and trunk pipeline companies (including interstate, intrastate, and intracompany pipelines), crude oil producers, terminal operators, storers of crude oil, and companies transporting Alaskan crude oil by water.

EIA-804: Based on the ERA-60 universe, which includes all importers of record of crude oil and petroleum products into the United States and Puerto Rico. The selected sample size is 65.

EIA-805: Based on the EIA-815 universe, which includes all shippers of unfinished oils and petroleum products into the United States from Puerto Rico. Four companies report.

Sampling Method

The cut-off method is the sampling procedure used for all weekly surveys except the EIA-802, which uses the monthly universe in its entirety. In the cut-off method, companies are ranked from largest to smallest on the basis of the quantities reported during some previous 12-month period. Companies are chosen for the sampling, beginning with the largest and adding companies until the total sample covers 90 percent of the total for the previous time period for each product published in the *Weekly Petroleum Status Report*.

Collection Methods

Data are collected by mail, mailgram, telephone, Telex, and Telefax on a weekly basis. The report period closes each Friday at 7 a.m. All canvassed firms and terminal operations companies must file by 5 p.m. on the following Monday.

Estimation and Imputation

After company reports have been checked and entered into the weekly data base, weekly totals for given products are estimated by using the following formula.

The total reported by all companies for the most recent month (M_t) is divided by the amount reported by the sample of companies for the most recent month (M_s). The result is multiplied by the amount reported by the sample of companies for the current week (W_s). The answer, W_t , is an estimate of the amount that would have been reported by all companies for the current week if all companies reported each week.

$$W_t = \frac{M_t}{M_s} (W_s)$$

This procedure is used to estimate total weekly inputs to refineries and production.

To estimate stocks of finished products, the preceding procedure is followed separately for refineries, bulk terminals, and pipelines. Total estimates are formed by summing over establishment types.

Weekly imports data are highly variable on a company-by-company basis or a week-by-week basis. Therefore, an exponentially smoothed ratio has been developed. The estimate of weekly imports is the sum of the smoothed ratio multiplied by the weekly values and estimates for shipments from Puerto Rico. Imports of other oils includes an adjustment from Census data for unlicensed products because of coverage differences between the monthly imports data and Census data.

Explicit imputation is done for companies which do not respond in a given week. The imputed values are exponentially smoothed means of recent reports from the specific company.

Response Rates

The response rate for the published estimates is usually between 95 and 98 percent.

Note 1.2: Monthly Petroleum Supply Reporting System (MPSRS)

Background

The MPSRS was implemented in January 1983 as the result of an extensive effort to integrate the collection and processing of petroleum supply data that have been collected on other survey forms for many years. The collection of monthly petroleum supply statistics began as early as 1918 when the Bureau of Mines (BOM) began collecting data on refinery operations and crude oil stocks and movements. The collection systems

were further expanded to include natural gas plant liquids production and storage in 1925, imports of crude oil and petroleum products and storage and movements of petroleum products in 1959, and tanker and barge movements of crude oil and petroleum products in 1964. Since their inception, each survey has undergone numerous changes, but the MPSRS is the first effort to make them all consistent and comparable.

Respondent Frame

EIA-810: All petroleum refineries and plants that produce finished motor gasoline through the mechanical blending of liquids which are operated or controlled in the 50 States, the District of Columbia, Puerto Rico, the Virgin Islands, the Hawaiian Foreign Trade Zone, and Guam. Approximately 313 respondents report on the EIA-810.

EIA-811: All bulk terminal facilities in the 50 States and the District of Columbia, Puerto Rico, and the Virgin Islands that (a) have a total bulk storage capacity of 50,000 barrels or more and/or (b) receive petroleum products by tanker, barge, or pipeline, regardless of ownership of the material. Approximately 328 respondents report on the EIA-811.

EIA-812: All products pipeline companies that carry petroleum products (including interstate, intrastate and intracompany pipelines) in the 50 States and the District of Columbia. Approximately 94 respondents report on the EIA-812.

EIA-813: All companies which carry or store crude oil of 1,000 barrels or more in the 50 States, and the District of Columbia. Included are gathering and trunk pipeline companies (including interstate, intrastate, and intracompany pipelines), crude oil producers, terminal operators, storers of crude oil, and companies transporting Alaskan crude oil by water.

EIA-815: All licensed importers and importers of record shipping petroleum products from Puerto Rico into the 50 States and the District of Columbia.

Import data from the ERA-60 and EIA-815 are integrated into the import statistics reported in the PSM.

EIA-816: All operators of facilities designed to extract liquid hydrocarbons from natural gas stream (natural gas processing plants) or to separate a hydrocarbon stream into its component products, i.e., propane, butane, natural gasoline, etc. (fractionators). Approximately 990 respondents report on the EIA-816.

EIA-817: All known companies and plants that have custody of crude oil and petroleum products transported by tanker and barge between PAD Districts or between PAD Districts and the Panama Canal. There are about 50 respondents.

ERA-60: All licensed importers and importers of record importing crude oil and petroleum products into the

United States and Puerto Rico. The respondent universe consisted of approximately 1,100 firms as of July 31, 1982. However, only a selected 250 importers must report each month regardless of import activity. All others must report only for a month in which they actually had imports. The respondent universe for this survey is updated whenever an import license is granted by the Office of Oil Imports of the ERA.

EIA utilizes a number of sources and methods to maintain the survey respondent lists. On a regular basis, survey managers review industry publications such as the *Oil and Gas Journal* and *LP Gas Almanac* for information on facilities or companies going into operation or closing down. These are augmented by articles in newspapers, letters from respondents indicating changes in status and information received from survey systems operated by other offices.

Periodically an extensive survey study is conducted to completely refresh the frames. This involves consolidating information from every known source including State agencies, federal agencies (e.g., EPA, Corps of Engineers, Census Bureau, etc.), and private industry directories. The effort also includes the evaluation of the impact of potential frame changes on the historical time series of data published from these respondents. The results of this frame study are usually implemented in January to provide a full year under the same frame.

Collection Methods

The data for all of the MPSRS surveys are collected monthly. Completed forms are required to be postmarked by the 20th day following the end of the report month, with the exception of the EIA-815 and ERA-60 which are due 15 work days following the end of the report month. Telephone follow-up calls are made to nonrespondents prior to the publication deadline, for their data. An automated mailing list is maintained and is used to monitor receipt of the forms.

Imputing Missing Data

Imputation is performed only for nonresponding companies that submitted reports the previous month. For such companies, previous monthly values are used for current values. The previous month's ending stocks value is used for both the current month's beginning stocks and the current month's ending stocks. In the event that the previous month's data were estimated, the respondent is contacted and requested to submit estimates, if necessary, to be followed by submission of actual data. Data for nonrespondents on the EIA-815 and 817, and ERA-60 are not imputed.

Response Rates

As of the filing deadline, the response rates of the EIA-810 through EIA-813 respondents is over 90 per-

cent. The response rate for the EIA-816 is over 85 percent and for the EIA-817 it is 98 percent. All companies that have not responded are contacted by telephone. Although data are taken by telephone to expedite processing, a certified submission is still required. Names of companies that fail to file for 2 consecutive months are forwarded for further noncompliance action.

In July 1983, the ERA-60 survey had a response rate of 99.9 percent by the filing deadline. The universe was 1,100 firms at that time. (Because this is a dynamic survey, the universe is constantly changing.) Standard follow-up of nonrespondents is made to insure that all reports are received, since data are not imputed for nonrespondents. In addition, response is cross-checked with response on the Petroleum Licensing Decrementation System (PLDS), a listing of each month's importers. The response rate is generally 98 to 99 percent by the time the data are first published.

Note 1.3: Census Import (IM-145) and Export (EM-522 and EM-594) Data

Background

Each month the EIA purchases magnetic tapes of aggregated import and export statistics from the Bureau of the Census. These data provide the only source of export statistics and are used to augment the import data collected by the EIA. Export statistics and import data from the Census tapes on liquefied petroleum gases and bonded ship bunkers are published in the PSM.

Import Statistics (IM-145)

Coverage

The import statistics reflect both government and non-government imports of merchandise from foreign countries into the U.S. Customs territory (the 50 States, the District of Columbia, and Puerto Rico), without regard to whether or not a commercial transaction is involved. In general, the statistics record the physical movement of merchandise into the United States from foreign countries, with the exception of the following types of transactions that are excluded from the statistics:

1. Merchandise in-transit through the United States, when documented with Customs as an in-transit movement.
2. Shipments from anywhere to U.S. possessions and shipments from U.S. possessions to the United States. (U.S. possessions include Puerto Rico, the Virgin Islands, Guam, and American Samoa.)
3. U.S. merchandise that was held in foreign countries by the U.S. Armed Forces and is returned to the United States for the use of the Armed Forces.

Source of Import Information

The official U.S. import statistics are compiled by the Bureau of the Census from copies of the import entry and warehouse withdrawal forms that importers are required by law to file with Customs officials (Customs Forms 7501, 7505, and 7506).

Imported petroleum is reported as *Imports for Consumption*. Imports for consumption are a combination of entries for immediate consumption and withdrawals from warehouses for consumption. With certain exceptions as indicated above, these data generally reflect the total of commodities entered into U.S. consumption channels.

Country and Area of Origin

The country reported in the statistics as the country of origin is defined as the country where the merchandise was grown, mined, or manufactured. In instances where the country of origin cannot be determined, the transactions are credited to the country of shipment.

Export Statistics (EM-522 and EM-594)

Coverage

The export statistics reflect both government and non-government exports of domestic and foreign merchandise from the U.S. Customs territory (the 50 States, the District of Columbia, and Puerto Rico) to foreign countries, without regard to whether or not the exportation involves a commercial transaction. In general, the statistics record the physical movement of merchandise out of the United States to foreign countries, with the exception of the following types of transactions:

1. All shipments from U.S. possessions, regardless of whether the shipments are sent to the United States, to other U.S. possessions, or to foreign countries.
2. Merchandise shipped in transit through the United States from one foreign country to another, when documented as such with U.S. Customs.
3. Bunker fuels and other supplies and equipment for use on departing vessels, planes, or other carriers engaged in foreign trade.

Source of Export Information

The official U.S. export statistics are compiled by the Bureau of the Census primarily from copies of Shipper's Export Declarations. Exporters are required to file Shipper's Export Declarations with Customs officials. The only exceptions are those exporters who have been authorized to submit data directly to the Bureau of Census on magnetic tape, punched cards, or monthly Shipper's Summary Export Declarations.

Country and Area of Destination

The country of destination is defined as the country of ultimate destination or the country where the goods are to be consumed, further processed, or manufactured, as known to the shipper at the time of exportation. If the shipper does not know the country of ultimate destination, the shipment is credited to the last country to which the shipper knows that the merchandise will be shipped in the same form as it was when exported.

Note 2: Supply

The components of petroleum supply are field production, refinery production, imports, and stock withdrawal or addition:

Field Production is the sum of crude oil production (including lease condensate), natural gas processing plant production, and new supply (field production) of other liquids used by refineries.

Crude oil production is estimated based on data received from State conservation and revenue agencies. For further explanation, see Explanatory Note 3.

Field production of natural gas plant liquids (NGPL), including finished petroleum products, is reported monthly on survey Form EIA-816, *Monthly Natural Gas Liquids Report*. Negative production will occur when the amount of a product produced during the month is less than the amount of that same product that is reprocessed (input) or reclassified to become another product during the same month. For survey description and other detail, see Explanatory Note 1.2.

Refinery Production of petroleum products is reported monthly on survey Form EIA-810, *Monthly Refinery Report*. Published production of these products equals refinery production minus refinery input. Refinery production of unfinished oils and of motor and aviation gasoline blending components appears on a net basis under refinery input. Negative production will occur when the amount of a product produced during the month is less than the amount of that same product that is reprocessed (input) or reclassified to become another product during the same month.

Imports of crude oil and petroleum products are reported monthly on Form ERA-60, *Report of Oil Imports into the United States and Puerto Rico*, and Form EIA-815, *Shipments of Refined Products (Including Unfinished Oils) from Puerto Rico to the United States*. In addition, the Census Bureau Tabulation IM-145 summarizes import data from Customs import declarations reported on Customs Forms 7501, 7505, and 7506. The most prominent difference between the EIA and Census systems appears in imports of liquefied petroleum

gases (LPG), where the Census data show a much higher level of imports than EIA data. This occurs because the ERA-60 respondent frame was built by monitoring importers of licensed products and LPGs are not licensed products. Therefore, respondents that import only LPGs have not been identified, and do not report these imports to the Department of Energy. Since these importers are required to file form 7501 with the U.S. Customs Service, EIA obtains data on imports of LPGs from Census Tabulation IM-145. Additional data taken from the IM-145 are relatively small quantities of naphtha- and kerosene-type jet fuels, distillate fuel oils, and residual fuel oils withdrawn from bonded storage for use in international trade. Even though these duty-free fuels are stored on United States shores, they did not enter the United States for domestic consumption and therefore are not included in the ERA-60 reporting system.

Stock Withdrawal (+) or Addition (-) is calculated by subtracting stocks at the end of the month from stocks at the beginning of the same month. (Note: The beginning stocks of one month are equal to the ending stocks of the previous month.) A positive result (+) would represent a withdrawal from stocks and an increase in petroleum supplies distributed for domestic consumption. A negative result (-) would represent a buildup of stocks and a reduction in the amount of petroleum supplies distributed for domestic consumption. For a description of survey forms used to make stock withdrawal or addition calculations see Explanatory Note 5.

Unaccounted-for Crude Oil is a balancing item that represents the difference between crude oil supply and disposition.

Crude oil supply is the sum of field production, imports and stock withdrawals or additions. Crude oil disposition is the sum of exports, refinery input, losses and product supplied. Unaccounted-for crude oil is calculated by subtracting crude oil supplies from crude oil disposition. A positive result indicates that refiners and exporters reported use of more crude oil than was reported to have been available to them. (This occurs, for example, when imports are undercounted due to late reporting or other problems.) A negative result would indicate that more crude oil was reported to have been supplied to refiners and exporters than they reported used.

Note 3: Domestic Crude Oil Production

Data for the Crude Oil Production System (COPS) are reported to the Department of Energy by each of the State conservation agencies, which collect crude oil production values for tax purposes. The U.S. Geological Survey reports the volume of crude oil that is produced offshore in Federally-owned waters. With the exception of ten State conservation agencies, all of these reports are received monthly. After each calendar year, these monthly numbers are updated using the annual reports

from the State conservation agencies and the U.S. Geological Survey. The ten States that do not report monthly values are Indiana, Kentucky, Missouri, Arkansas, Utah, New York, Ohio, Pennsylvania, West Virginia, and Wyoming. Monthly values are estimated for these States using the individual linear trends of their historical annual crude oil production values.

There is a time lag of approximately 4 months between the end of the reporting month and the time when the monthly COPS information becomes available. Table 11 of this publication provides information on crude oil production for the most recent month for which COPS values are available. In order to present more timely crude oil production values, the EIA's Dallas Field Office prepares a series of State level estimates which are based on historical production patterns and are summed to obtain the monthly crude oil production values shown in the summary statistics of this publication.

The individual State level estimates are either exponential curve fitted projections based on recent data or are constant level projections based on the average production rate during a recent time period. In some cases, adjustments are made to these estimates based on additional information on expected changes in production rates supplied by a State agency, a trade association, or an individual field operator.

Note 4: Disposition

The components of petroleum disposition are crude oil losses, refinery inputs, exports, and products supplied for domestic consumption.

Crude Oil Losses is the sum of crude oil losses at refineries. Crude oil losses at refineries are reported on Form EIA-810, *Refinery Report*.

Refinery Inputs of crude oil, natural gas plant liquids, and other liquids are reported monthly on survey Form EIA-810, *Monthly Refinery Report*. Published inputs of unfinished oils and of motor and aviation gasoline blending components equal refinery input minus refinery output. Refinery inputs of finished petroleum products are reported on a net basis under refinery production.

Exports of crude oil and petroleum products are compiled from Census Bureau tabulations EM-522 and EM-594. Exports include crude oil shipments to Puerto Rico, the Virgin Islands, and the Hawaiian Foreign Trade Zone, which are obtained from refinery receipts reported on Form EIA-810, by refineries located in these places.

Product Supplied for each product is calculated by summing field production plus refinery production, plus imports, plus stock withdrawal or minus stock addition, minus crude oil losses (plus net receipts when calculated on a PAD District basis), minus re-

finery input, minus exports. This formula ensures that total disposition equals total supply.

Products supplied indicates those quantities of petroleum products supplied for domestic consumption. Occasionally, the result for a product is negative because total disposition of that product exceeds total supply. Negative product supplied may occur for a number of reasons: (1) product reclassification has not been reported, (2) data were misreported or reported late, (3) in the case of calculations on a PAD District basis, the figure for net receipts was inaccurate because the coverage of interdistrict movements was incomplete.

Product supplied for crude oil is the sum of crude oil burned on leases and by pipelines as fuel oil. These data are reported on Form EIA-813, *Monthly Crude Oil Report*. Prior to January 1983, crude oil burned on leases and by pipelines as fuel oil were reported as either distillate or residual fuel oil and included in product supplied for these products.

Note 5: Stocks

Primary stocks of crude oil are the sum of ending stocks reported monthly on Form EIA-810, *Monthly Refinery Report*, and on Form EIA-813, *Monthly Crude Oil Report*. Crude oil held in the Strategic Petroleum Reserve is included unless otherwise noted. Alaskan crude oil in transit is also included. Stocks of crude oil are also reported weekly on Form EIA-800, *Weekly Refinery Report*, and on Form EIA-803, *Weekly Crude Oil Stocks Report*. Primary stocks of petroleum products are summed from data reported on Form EIA-816, *Monthly Natural Gas Liquids Report*, Form EIA-810, *Monthly Refinery Report*, Form EIA-811, *Monthly Bulk Terminal Report*, and on Form EIA-812, *Monthly Product Pipeline Report*. Primary stocks of petroleum products do not include either secondary stocks held by dealers and jobbers or stocks held by consumers. Petroleum product stocks are also reported weekly on Form EIA-800, *Weekly Refinery Report*, Form EIA-801, *Weekly Bulk Terminal Report*, and Form EIA-802, *Weekly Crude Oil Stocks Report*. For survey descriptions and other details, see Explanatory Notes 1.1 - 1.3.

Note 6: Average Stock Levels

The graphs displaying monthly stock levels of crude oil, motor gasoline, distillate fuel oil, residual fuel oil, liquefied petroleum gases, and other products provide the user with recent data as well as a summary of data from January through December or from July through June for the most recent 3-year period. This summary takes the form of an *average range* that includes seasonal variation determined from a longer time period. The

average range represents the historical pattern; it is not a forecast.

These curves are updated semiannually (On April 1 and October 1), by basing the average ranges on a more recent time period. Each 3-year data series is adjusted by dropping the first 6 months and including the most recent 6 months.

For each data series, the monthly seasonal factors are estimated by means of a seasonal adjustment technique developed at the Bureau of the Census (Census X-11). The seasonal factors are assumed to be stable (i.e., unchanging from year to year) and additive. The series is deseasonalized by subtracting the seasonal factor for the appropriate month from the reported stock levels. The intent of deseasonalization is to remove only seasonal variation from the data. Thus, a deseasonalized series would contain the same trends and irregularities as the original data. For crude oil stocks, the derived seasonal factors are very small relative to crude oil stock levels. Therefore, the seasonal factors for distillate fuel oil, residual fuel oil, liquefied petroleum gases and other products are derived using monthly data from 1974-1980. For motor gasoline, the seasonal factors are based on monthly data from 1975, 1976, 1978, 1979 and 1980. In 1977, there was virtually no seasonal behavior in motor gasoline stocks. Monthly stock levels stayed at the same high level for the entire year. In addition, the seasonal patterns in 1973, 1974 and 1977 were not representative of the recent past, and these years were not used in the determination of seasonal patterns for motor gasoline stocks. Because of these differences in the year-to-year seasonal fluctuation of motor gasoline, the evidence for the illustrated seasonal patterns for crude oil, distillate fuel oil, residual fuel oil, liquefied petroleum gases and other products is stronger than is the evidence for the illustrated seasonal patterns for motor gasoline.

In some cases, these seasonal patterns do not show a smooth transition from month to month. For example, the June factor for residual fuel oil is slightly less than the May and July values, making a bump in the curve. As there is little difference in the magnitude of these seasonal factors, it is possible that this variation is due to the small number of observations (7 years) and the data variability.

After seasonal factors are derived, the most recent 3-year period (from January through December or from July through June) is deseasonalized. The average of the deseasonalized 36-month series determines the midpoint of the deseasonalized average band. The standard error of the deseasonalized 36 months is calculated adjusting for extreme data points. The width of the average range is twice this standard error.

The upper curve of the average range is defined as the average plus the seasonal factors plus the standard error. The lower curve is defined as the average plus the seasonal factors minus the standard error.

Note 7: Movements

Movements of crude oil between PAD Districts are reported on Form EIA-817, *Monthly Tanker and Barge Movement Report*, and on Form EIA-813, *Monthly Crude Oil Report*. Petroleum product movements are reported on Forms EIA-817, *Monthly Tanker and Barge Movement Report*, and EIA-812, *Monthly Product Pipeline Report*. Net receipts is the difference between total movements into and total movements out of each PAD District by pipeline, tanker, and barge. For survey descriptions and other detail, see Explanatory Note 1.2.

Note 8: Preliminary Monthly Statistics

Weekly data (Forms EIA-800, 801, 802, 803, and 804) are used to estimate the most recent monthly values for the *Summary Statistics* section. Since some of the weekly reporting periods overlap two adjacent months, it is necessary to use weighting factors in the calculation of the monthly values.

To estimate crude oil and petroleum product imports, crude oil input to refineries and production of petroleum products for a specific month, the weekly estimates are weighted by the number of days of that month included in each week, then summed.

End-of-month stock levels of crude oil and the major products (motor gasoline, distillate fuel oil, and residual fuel oil) are calculated in a similar manner, but use only the two weekly reporting periods that cover the end-of-week stocks before and after the end of the month. The end-of-month stock level is calculated by first calculating the stock change between the two weeks. The daily stock change between the two end-of-week stock levels is then calculated. This number is multiplied by the weighting factor of the earlier of the two weeks (the week that covers the last day of the month of interest). This change is added to the earlier of the two end-of-week stock levels to estimate the end-of-month stock level.

Preliminary monthly estimates of domestic crude oil production are calculated as described in Explanatory Note 3.

Note 9: Notes on Tables

Note 9.1 Crude Oil and Petroleum Products Overview statistics on the referenced line appear in Table 4 of the Detailed Statistics, except where noted.

- Crude Oil and Petroleum Products Stock Withdrawal (+) or Addition (-), Petroleum Products Supplied, Total Imports, Crude Oil Imports, Total Exports, and Crude Oil Exports appear as labeled in Table 4. Total Production and Crude Oil Production appear under Field Production in Table 4.

- Natural Gas Plant Production is the sum of Natural Gas Liquids and Finished Petroleum Products Field Production in Table 4.

- Petroleum Products Imports is the sum of Natural Gas Liquids and LRGs, Other Liquids, and Finished Petroleum Products Imports in Table 4.

- Total Crude Oil and Petroleum Products Ending Stocks appear in thousand barrels in Table 2.

Note 9.2 Crude Oil Supply and Disposition statistics on the referenced line appear in Table 1 of the Detailed Statistics, except where noted.

- Total Domestic Field Production, Alaskan Field Production, SPR Imports, Other Imports (synonymous with Imports Gross Excl. SPR), SPR and Other Primary Stocks Withdrawal (+) or Addition (-), Unaccounted For Crude Oil, Refinery Inputs, and Exports appear as labeled in Table 1.

- Crude Losses and Product Supplied appear as labeled in Table 4.

- SPR Ending Stocks and Other Primary Ending Stocks (synonymous with stocks excluding SPR) appear in thousand barrels in Table 1.

- Total Crude Oil Ending Stocks appear in thousand barrels in Table 2.

- Total Imports appear in Table 4.

Note 9.3 Finished Motor Gasoline Supply and Disposition statistics on the referenced line appear in Table 4 of the Detailed Statistics, except where noted.

- Total Production is the sum of Field Production and Refinery Production in Table 4.

- Imports, Stock Withdrawal (+) or Addition (-), Exports, and Product Supplied appear as labeled in Table 4.

- Unleaded Percent of Total Product Supplied represents the ratio of finished unleaded motor gasoline product supplied to total finished motor gasoline product supplied, multiplied by 100 and rounded to the nearest tenth.

- Ending stocks are aggregated from ending stocks in thousand barrels in Table 2.

Note 9.4 Distillate and Residual Fuel Oil Supply and Disposition statistics on the referenced lines appear in Table 4 of the Detailed Statistics, except where noted.

- Total Production is the sum of Field Production and Refinery Production in Table 4.

- Imports, Stock Withdrawal (+) or Addition (-), Exports, and Product Supplied appear as labeled in Table 4.

- Ending Stocks appear in thousand barrels in Table 2.

Note 9.5 Liquefied Petroleum Gases Supply and Disposition statistics represent the aggregation of statistics on ethane, propane, butane, butane-propane mixtures, ethane-propane mixtures, and isobutane. The statistics on the referenced line appear in Table 4 of the Detailed Statistics, except where noted.

- Total Production is the sum of Field Production and Refinery Production in Table 4.

- Imports, Stocks Withdrawal (+) or Addition (-), Refinery Inputs, Exports, and Product Supplied appear as labeled in Table 4.

- Ending stocks appear in thousand barrels in Table 2.

Note 9.6 Other Petroleum Products Supply and Disposition statistics represent the aggregation of statistics on natural gasoline, isopentane, unfractionated stream, plant condensate, other liquids, and all finished petroleum products except finished motor gasoline, distillate fuel oil, and residual fuel oil. The statistics on the referenced line are aggregated from Table 4 of the Detailed Statistics, except where noted.

- Total Production is the aggregated sum of Field Production and Refinery Production in Table 4.

- Imports, Stock Withdrawal (+) or Addition (-), Refinery Inputs, Exports, and Product Supplied are aggregated from Table 4.

- Ending stocks are aggregated from ending stocks in thousand barrels in Table 2.

Note 9.7 Table 1. U.S. Petroleum Balance

- Lines (1) through (3): Crude oil (including lease condensate) production for *Alaska*, *Lower 48 States*, and *Total U.S.* are calculated by calling the conservation agency in Alaska for Alaskan crude oil production during the month, estimating crude oil production in the United States (see Explanatory Note 3), and taking the difference to equal production in the Lower 48 States.

- Line (5): *SPR Imports* are reported on Survey Form ERA-60.

- Line (12): *Total Other Sources* equals crude oil stock withdrawal (+) or addition (-) plus unaccounted for crude oil minus crude losses in Table 2.

- Line (14): Natural gas plant liquids (NGPL) *Production* equals field production of natural gas liquids (NGL) plus field production of finished petroleum products in Table 2.

- Line (15): *NGPL Imports* equals the sum of the Im-

ports of natural gasoline and isopentane, unfractionated stream, and plant condensate Imports in Table 2.

- Line (16): *NGPL Stock Withdrawal (+) or Addition (-)* is equal to the sum of stock withdrawal (+) or addition (-) of natural gasoline and isopentane, unfractionated stream, and plant condensate in Table 2.
- Line (17) equals the sum of lines (14), (15), and (16).
- Line (18): Unfinished oils and gasoline blending components *Stock Withdrawal (+) or Addition (-)* equals stock withdrawal (+) or addition (-) for other hydrocarbons and alcohol, for unfinished oils, motor gasoline blending components, and aviation gasoline blending components.
- Line (20): *Other Hydrocarbons and Alcohol New Supply* equals the field production of same in Table 2.
- Line (21): *Refinery Processing Gain* is a balancing item equal to total refinery production minus total refinery input in Table 2.
- Line (23): *Total Other Liquids* equals the sum of lines (18) through (22).
- Line (24): *Total Production of Products* equals crude oil input to refineries plus field production of NGPL and finished petroleum products; plus imports of natural gasoline and isopentane, unfractionated stream, and plant condensate; plus stock withdrawal (+) or addition (-) of natural gasoline and isopentane, unfractionated stream, and plant condensate; plus stock withdrawal (+) or addition (-) of other hydrocarbons and alcohol, unfinished oils, aviation gasoline blending components, and motor gasoline blending components; plus imports of unfinished oils, aviation gasoline blending components, and motor gasoline blending components; plus field production of other hydrocarbons and alcohol; plus total refinery production; minus total refinery input; plus crude oil product supplied in Table 2.
- Line (25): *Gross Imports of Refined Products* equals imports of LPG plus imports of finished petroleum products in Table 2.
- Line (26): *Exports of Refined Products* equals exports of LPG plus exports of finished petroleum products in Table 2.
- Line (27): *Net Imports of Refined Products* equals the difference between lines (25) and (26).
- Line (28): *Total New Supply of Products* equals crude oil input to refineries plus field production of NGPL and finished petroleum products; plus imports of natural gasoline and isopentane, unfractionated stream, and plant condensate; plus stock withdrawal (+) or addition (-) of natural gasoline and isopentane, unfractionated stream, and plant condensate; plus stock withdrawal (+) or addition (-) of other hydrocarbons and alcohol, unfinished oils, aviation

gasoline blending components, and motor gasoline blending components; plus imports of unfinished oils, aviation gasoline blending components, and motor gasoline blending components; plus field production of other hydrocarbons and alcohol; plus total refinery production; minus total refinery input; minus crude oil product supplied plus imports of LPG and finished petroleum products; minus exports of LPG and finished petroleum products in Table 2.

- Line (29): *Refined Products Stocks Withdrawal (+) or Addition (-)* equals the sum of stock withdrawal (+) or addition (-) for LPG and finished petroleum products in Table 2.
- Line (30): *Total Petroleum Products Supplied for Domestic Use* equals total products supplied in Table 2.
- Lines (31) through (35) equal the respective products supplied in Table 2.
- Line (36): *Other Products Supplied* equals the sum of natural gasoline and isopentane, unfractionated stream, plant condensate, aviation gasoline, naphtha < 400 Deg. F for petrochemical feedstock use, other oils > 400 Deg. F. for petrochemical feedstock use, special naphthas, lubricants, waxes, coke, asphalt, road oil, still gas, unfinished oils, motor gasoline blending components, aviation gasoline blending components and miscellaneous products supplied in Table 2.
- Line (37): *Total Product Supplied* is equal to total products supplied in Table 2.
- The sum of lines (38) and (39), stocks of *Crude Oil and Lease Condensate (Excluding SPR)* and stocks held by the *Strategic Petroleum Reserve*, equals ending stocks of crude oil in Table 2. SPR stocks are reported on Form EIA-813.
- Line (43): stocks of *Refined Products*, equals the sum of LPG and finished petroleum product stocks in Table 2.

Note 10: New Stock Basis

In January 1975, 1981, and 1983, numerous respondents were added to bulk terminal and pipeline surveys affecting subsequent stocks reported and stock withdrawal calculations. Using the expanded coverage (new basis), the end-of-year stocks, in million barrels, would have been:

- Crude Oil and Petroleum Products: 1974 - 1,121; 1980 - 1,420; and 1982 - 1,462.
- Motor Gasoline: 1974 - 225; 1980 - 263; 1982 - 244 (Total) and 203 (Finished).
- Distillate Fuel Oil: 1974 - 224; 1980 - 205; and 1982 - 186.

- **Residual Fuel Oil:** 1974 - 75; 1980 - 91; and 1982 - 68.
- **Liquefied Petroleum Gases:** 1974 - 113; 1980 - 128; and 1982 - 103.
- **Other Petroleum Products:** 1974 - 220; 1980 - 249; and 1982 - 259.
- **Stock withdrawal calculations** beginning in 1975, 1981, 1983 were made using new basis stock levels.

In January 1984, changes were made in the reporting of natural gas liquids. As a result, unfractionated stream, which was formerly included in "Other Petroleum Products Supply and Disposition" table in the Summary Statistics, is now reported on a component basis (ethane, propane, normal butane, isobutane and pentanes plus). Most of these stocks will now appear in the "Liquefied Petroleum Gases Supply and Disposition" table of the Summary Statistics. This change will affect stocks reported and stock withdrawals in each table. Under the new basis, end-of-year 1983 stocks, in million barrels, would have been:

- **Liquefied Petroleum Gases:** 1983 - 108
- **Other Petroleum Products:** 1983 - 248

Note 11: Stocks of Alaskan Crude Oil

Stocks of Alaskan crude oil in transit were included for the first time in January 1981. The major impact of this change is on the reporting of stock withdrawal calculations. Using the expanded coverage (new basis), 1980 end-of-year stocks, in million barrels, would have been 488 (Total) and 380 (Other Primary).

Note 12: Changes in Petroleum Industry Reporting

Petroleum statistics contained in this report for all years through 1980 were developed using definitions, concepts, reporting procedures and aggregation methods that are consistent with those developed by the U.S. Bureau of Mines. Research conducted by the Energy Information Administration in 1979 and 1980 indicated that changes had occurred in the petroleum industry that were not being adequately reflected in EIA's reporting systems.

EIA reporting forms, definitions, and procedures were modified beginning in January 1981 to describe industry operations more accurately. Unfortunately, empirical information is not available to precisely measure the data shortcomings throughout 1980. However, estimates of the magnitudes of differences in the major data series are described below to form a basis for comparing 1979, 1980, and 1981 data.

Motor Gasoline

Prior to 1979, the EIA product-supplied series for motor gasoline was consistently about 2 percent lower than the Federal Highway Administration (FHWA) gasoline-sales data series, which is derived from State tax receipts. This difference increased to about 4 percent in 1979 and 5 percent in 1980. There are two primary causes for this growing difference. First, refinery operations, particularly the flows of unfinished oils and the redesignation of some finished products, were not being accurately described on the EIA survey forms. Second, a large amount of gasoline was being produced away from refineries at "downstream blending stations" to take advantage of provisions in regulations governing the amount of lead that could be added. These blending stations were not reporting gasoline production to the EIA until the data system was changed in January 1981.

Quantitative estimates of the magnitude of the difference—in EIA's gasoline product supplied data in 1979 and 1980 have been made by the EIA and the American Petroleum Institute (API). The following table provides 1979 and 1980 data as published in the *Petroleum Statement Annual*, as well as EIA and API estimates of "recast" motor gasoline product supplied. EIA recast estimates were based upon preliminary monthly information in the *Monthly Petroleum Statement*. The ranges displayed in the EIA column reflect uncertainty in the estimates. Also shown are the FHWA motor gasoline sales statistics for those years. EIA has recently published a study of the quality of these FHWA data.¹

¹Office of Energy Information Validation, Energy Information Administration, U.S. Department of Energy, *Error Profile of the Motor Fuel Taxation Data used to Establish and Monitor State Emergency Conservation Targets* (Washington, D.C.: December, 1981).

**Finished Motor Gasoline Product Supplied on Old and New Basis
(Thousand Barrels per Day)**

	1979				1980			
	EIA Reported	API Recast	EIA Recast	FHWA ¹	EIA Reported	API Recast	EIA Recast	FHWA ¹
Jan	6,830	7,230	7,084- 7,246	6,984	6,323	6,789	6,630- 6,791	6,672
Feb	7,254	7,496	7,389- 7,568	7,538	6,596	6,983	6,831- 7,003	6,830
Mar	7,229	7,414	7,301- 7,463	7,316	6,406	6,753	6,607- 6,768	6,713
Apr	7,055	7,300	7,187- 7,353	7,375	6,800	7,014	6,886- 7,052	6,981
May	7,213	7,429	7,313- 7,475	7,428	6,729	6,954	6,823- 6,984	7,044
Jun	7,191	7,483	7,350- 7,516	7,441	6,657	6,966	6,824- 6,991	7,049
Jul	6,902	7,241	7,105- 7,266	7,299	6,743	6,973	6,960	7,132
Aug	7,330	7,546	7,426- 7,588	7,619	6,648	6,841	6,828	7,090
Sep	6,881	7,122	7,016- 7,262	7,232	6,510	6,692	6,962	6,685
Nov	6,791	7,068	6,956- 7,122	7,142	6,234	6,507	6,516	6,951
Dec	6,730	7,106	6,966- 7,127	7,064	6,632	6,948	6,936	6,993
Average	7,034	7,302	7,183- 7,347	7,309	6,579	6,882	6,806- 6,889	6,925

¹FHWA gasoline statistics published in their 1979 Table MF-33G, 08-06-80, contain aviation gasoline as well as motor gasoline. Only motor gasoline data are included in published 1980 data. Consequently, the 1979 data shown above were reduced by subtracting aviation gasoline product supplied quantities as published by EIA in the 1979 *Petroleum Statement Annual*. The 1980 FHWA data published in their 1980 Table MF-33GA, August 1981, did not require this adjustment.

Distillate and Residual Fuel Oil

Distillate and residual fuel oil refinery production statistics through 1980 were adjusted to account for an imbalance between unfinished oil supply and disposition. The reported quantities of refinery inputs of unfinished oils typically exceed the available supply of unfinished oils. It has been assumed that this occurs when distillate and residual fuel oil produced by a refinery is shipped to another refinery, where it is treated as unfinished oil. This oil is then reprocessed rather than used or sold as distillate or residual fuel oil.

For many years (including 1980), the difference between unfinished oil disposition and supply was sub-

tracted from distillate and residual fuel oil production to adjust for this discrepancy. Two-thirds of the difference was applied to distillate, and one-third to residual fuel oil.

Beginning in January 1981 this adjustment was discontinued because there was not sufficient empirical evidence to support it. The following table presents distillate and residual fuel oil refinery production in 1980 as published (adjusted) and on the same basis as 1981 statistics are now being completed (unadjusted) to permit comparison between 1980 and 1981 data series. Adjusted distillate and residual fuel oil product supplied volumes differ from the unadjusted volumes by the same amounts as the adjusted and unadjusted production volumes.

Adjusted and Unadjusted Refinery Production, and Unadjusted Product Supplied of Distillate and Residual Fuel Oils, by Month for 1979 and 1980 (Thousand Barrels Per Day)

1979

Month	Distillate Fuel Oil				Residual Fuel Oil			
	Adj. Ref. Prod.	Unadj. Ref. Prod.	Diff.	Unadj. Product Supplied	Adj. Ref. Prod.	Unadj. Ref. Prod.	Diff.	Unadj. Product Supplied
Jan.	3,043	3,108	65	4,646	1,912	1,946	34	3,594
Feb.	2,888	2,945	57	4,869	1,792	1,822	30	3,625
Mar.	3,019	3,026	7	3,671	1,719	1,723	4	3,243
Apr.	2,945	2,978	32	3,048	1,639	1,656	17	2,524
May	3,066	3,093	27	3,025	1,586	1,600	14	2,517
Jun.	3,153	3,187	35	2,743	1,548	1,566	18	2,601
Jul.	3,305	3,344	38	2,601	1,575	1,594	20	2,471
Aug.	3,321	3,359	38	2,799	1,584	1,603	20	2,570
Sep.	3,354	3,306	- 48	2,599	1,627	1,602	- 25	2,584
Oct.	3,251	3,217	- 34	3,085	1,629	1,612	- 17	2,523
Nov.	3,239	3,200	- 39	3,208	1,736	1,716	- 20	2,795
Dec.	3,221	3,238	17	3,725	1,894	1,903	9	3,022
Average	3,152	3,169	16	3,327	1,687	1,695	8	2,834

1980

Month	Distillate Fuel Oil				Residual Fuel Oil			
	Adj. Ref. Prod.	Unadj. Ref. Prod.	Diff.	Unadj. Product Supplied	Adj. Ref. Prod.	Unadj. Ref. Prod.	Diff.	Unadj. Product Supplied
Jan.	3,013	3,093	80	3,794	1,771	1,812	41	3,108
Feb.	2,766	2,888	122	3,834	1,773	1,836	63	3,168
Mar.	2,557	2,690	133	3,312	1,584	1,652	68	2,726
Apr.	2,460	2,554	94	2,729	1,595	1,643	48	2,492
May	2,474	2,610	136	2,538	1,509	1,579	70	2,305
Jun.	2,646	2,721	75	2,392	1,575	1,613	38	2,359
Jul.	2,689	2,783	94	2,343	1,480	1,528	48	2,339
Aug.	2,461	2,582	121	2,258	1,444	1,506	62	2,348
Sep.	2,686	2,726	40	2,627	1,495	1,516	21	2,380
Oct.	2,589	2,650	61	2,981	1,512	1,543	31	2,258
Nov.	2,703	2,823	120	3,069	1,579	1,641	62	2,513
Dec.	2,891	3,052	161	3,776	1,660	1,743	83	2,762
Average	2,661	2,764	103	2,969	1,580	1,634	54	2,562

Total Petroleum Products

The imbalance between the supply and disposition of unfinished oils and gasoline blending components is included with other products (line 35) in the U.S. Petroleum Balance (Table 1). These imbalances are reported as negative product supplied in the Other Liquids sec-

tion, Supply and Disposition Statistics (Table 2). Since these changes only involve redistribution of the volumes of gasoline, distillate and residual fuel oil, gasoline blending components, and unfinished oils, the total volume of petroleum products supplied remains unaffected by them.

Note 13: NGL Import/Export Algorithms

Beginning in January 1984, the Energy Information Administration (EIA) implemented changes in the reporting of natural gas liquid (NGL) supply data, moving from a nine-product slate to a five-component slate that corresponds to industry record-keeping practices. Changes could not be made to the import and export systems. Therefore, in order to allocate imports and exports of mixed NGL streams to individual component parts, the EIA developed a statistical algorithm.

Imports

The imports algorithm is based on information gathered from the larger importers of NGL, who were asked to provide component analyses of the products they imported during the first six months of 1983. The percentages shown in Exhibit 1 are derived from the weighted averages of the data provided by the importers.

EXHIBIT 1. ALGORITHMS FOR ALLOCATING NGL IMPORTS

PRODUCT SLATE	Ethane	Propane	Normal butane	Isobutane	Pentanes Plus
Natural Gasoline & Isopentane (EIA-814)					100%
Plant Condensate (EIA-814)					100%
Ethane (IM-145)	100%				
Butane (IM-145)			60%	40%	
Butane-Propane Mixtures (IM-145)		40%	35%	20%	5%
Ethane-Propane Mixtures (IM-145)	80%	20%			

Exports

The export algorithm is based on information gathered from the larger exporters of NGL, who were asked to provide component analyses of the products they

exported during 1983. The percentages shown in Exhibit 2 are derived from the weighted averages of the data provided by the exporters. It was necessary to derive percentages by PAD of exportation, due to the wide variation of components in the mixed streams.

EXHIBIT 2. ALGORITHMS FOR ALLOCATING NGL EXPORTS

PRODUCT	P.A.D.	Ethane	Propane	EIA Component Slate Normal Butane	Isobutane	Pentanes Plus
Ethane	All	100%				
Propane	All		100%			
Butane	All			100%		
Mixed Streams	I, IV, V		40%	60%		
	II	30%	25%	15%	15%	15%
	III		80%	20%		